

AMBULATORY CARE QUALITY ASSURANCE PROJECT

Volume 2:
Program Descriptions

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AMBULATORY CARE QUALITY ASSURANCE PROJECT

Volume II: Program Descriptions

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FOREWORD

As the Bureau of Quality Assurance began implementation of the PSRO program in hospitals, it soon became evident that the future would require PSROs to be actively involved in ambulatory medical care quality assurance. Since the state of the art of ambulatory care review is far less advanced than that of hospital review, we realized that it would be necessary to develop a sound basis for the careful, gradual movement of PSROs into ambulatory care quality assurance.

This three-volume report is the result of the work completed by Health Care Management Systems, Inc., in one of the first major Bureau contracts to acquire and document knowledge of presently operational ambulatory care quality assurance projects. The purpose of this project was to systematically assess and document existing activities in a variety of health delivery settings across the country. During the course of the project, a generic quality assurance model was developed for use in the design, implementation, and assessment of ambulatory care review systems. This model is now under refinement and is being applied in the Bureau's cooperative ambulatory care quality assurance demonstration project. It represents a significant advance in our ability to design and assess such systems.

This three-part report, which includes a description of the generic model and study findings, description of each of the 27 ambulatory quality assurance systems included in the survey, and a bibliographic index that has been enriched by selected abstracts, should provide the reader with a concise overview of the state of the art. The results of this project are an important part of the foundation upon which to build well-balanced and meaningful PSRO participation in ambulatory care quality assurance. The report also reflects the investigators' concern with ambulatory quality assurance outside the scope of PSRO.

The authors of the report developed their material in a relatively short time to meet the need for fundamental knowledge of existing quality assurance programs to support the implementation of voluntary systems and governmental regulatory programs. It is hoped that any limitations in the material presented herein will be corrected through additional research and careful experimentation and demonstration of new ambulatory quality assurance methods and organization.

We believe that this report will be valuable to those within and outside the Federal Government who are interested in establishing effective quality assurance systems in ambulatory medical care. We are pleased to have provided partial funding to the project and the preparation of this monograph and hope that it will be useful to all who are now engaged in activities leading to improved quality in ambulatory medical care.



Michael J. Goran, M.D.
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ABSTRACT

That quality care assurance is in a state of flux is attested to by current literature in the field and is substantiated by the Ambulatory Care Quality Assurance Project (ACQAP) report. This nationwide survey was undertaken to reveal the state of the art in the United States today. During a study of more than two dozen sites over a wide range of geographic locations, the ACQAP produced a set of basic program procedures, a scoring method, and what appears to be a sound basis for planning, operating and assessing quality care assurance programs. The literature relative to quality assurance in ambulatory care was investigated and a collection of the better references accumulated.

Volume I of the three-volume report contains a detailed description of the ACQAP Model, its scoring system, and its findings. The data collection instrument, a 226-item open-ended questionnaire used in the study, is contained in an appendix.

Volume II contains detailed descriptions of the 27 programs reviewed in the course of the ACQAP accompanied by a compact tabulation of their key characteristics for quick reference, so that the reader may compare the study sites with his own.

Volume III is a bibliography containing a general list of the articles and other references found to be most useful to the study. The list is duplicated under several topic headings for the convenience of the reader interested in a particular aspect of quality assurance in ambulatory medical care. A number of the references have been abstracted and the volume also contains a narrative review of the literature.

I N T R O D U C T I O N

Volume II describes the specific ambulatory quality review activities and program methodologies used at 26 sites. The survey of sites focused on collection of data which would describe not only the methods used in various quality assurance programs, but their corresponding administrative structure, resource allocation, and program management, all of which may have impact on a quality assurance program. The descriptions, which strive to reflect the programs accurately, are based upon a detailed data collection instrument used both to collect documentation before site visits and to serve as a basis for interviews.

Study investigators attempted to distinguish between quality assurance activities as planned and activities as ultimately implemented. The sites surveyed provide a diverse sample of programs, as reflected by variations in the length, organization and content of individual descriptions. The reader should appreciate that providing a total picture of a program, while honoring the need for succinctness and brevity, was difficult. Signed approval for the program descriptions was obtained from all sites.

Information presented here was compiled to answer basic questions about various aspects of quality assurance programs and to allow the reader to match his own setting's characteristics with those of one or more of the sites surveyed. Comparison of sites and programs is facilitated by a chart, "Summary of Review System Characteristics," which precedes the descriptions and briefly summarizes eight characteristics. The chart should enable the reader to make quick comparisons among sites or to select sites similar to his own without reading all the material. Questions regarding individual sites not answered in this text may be addressed directly to Health Care Management Systems (HCMS) staff or to personnel at the site.

S U M M A R Y O F R E V I E W S Y S T E M C H A R A C T E R I S T I C S

The following chart briefly describes eight selected characteristics of every site visited and surveyed. The eight characteristics represent aspects of the review systems described which were identified by investigators as vital to a quick overview and well-rounded impression of individual quality assurance programs and the surveyed sites as a whole. Characteristics are as follows:

Administrative Structure: Outlines organization responsibilities, decision making framework, and structural scheme used to manage quality review system.

Topic Identification: Personnel and method used to decide which segment of medical care and the organization the review system will examine.

Case Selection: Methods and procedures for choosing cases to review.

Data Source: Documents used to collect data for review: Medical Record, Problem-Oriented Medical Record, Patient Questionnaire, Encounter Form, Billing Claims.

Criteria and Guidelines Used in Review: Identifies what types of criteria (explicit, implicit, documented) are used, and their application.

Review Procedures: Describes who conducts review and what data the reviewer examines during the review process.

Decision Making: Describes who makes decisions and what types of decisions are made for review of specific cases.

Feedback Procedures: Describes types of activity and personnel responsible for implementing feedback based on review decisions.

The chart can be used to form a quick impression of a site's program, to compare sites, and to generalize information about all sites under one characteristic. The explanatory statements under each characteristic may seem similar for different sites, but a close reading of all statements will reveal a diversity of methods and activities. Examination of the chart should provide the reader with a background of the similarities and differences in quality review methods and programs as surveyed by this project.

LIST OF SITES VISITED*, KEY TO ABBREVIATED NAMES, AND CLASSIFICATION BY

SOURCE OF FUNDING

1. CMP COLUMBIA MEDICAL PLAN (prepaid)
2. GHCC GIVEN HEALTH CARE CENTER (fee for service)
3. NCHPP NORTH CENTRAL HEALTH PROTECTION PLAN (fee for service)
4. MTHP MATTHEW THORNTON HEALTH PLAN (fee for service)
5. SLPMC ST. LOUIS PARK MEDICAL CENTER (fee for service)
6. HCHP HARVARD COMMUNITY HEALTH PLAN (prepaid)
7. GHA GROUP HEALTH ASSOCIATION, INC. (prepaid)
8. KNC KAISER PERMANENTE MEDICAL CARE PROGRAM, NORTHERN CALIFORNIA (prepaid)
9. HMOI HMO, INTERNATIONAL (prepaid)
10. NEVHC NORTHEAST VALLEY HEALTH CORPORATION (prepaid)
11. DMC DOWNSTATE MEDICAL CENTER (PEDIATRIC AMBULATORY SERVICE) (grants/local tax supported)
12. CHSD COMPREHENSIVE HEALTH SERVICES, DETROIT (grants/local tax supported)
13. MLK MARTIN LUTHER KING, JR. HEALTH CENTER (grants/local tax supported)
14. HCNHC HARRIS COUNTY NEIGHBORHOOD HEALTH CLINICS (grants/local tax supported)
15. HN HOUGH - NORWOOD FAMILY HEALTH CENTER (grants/local tax supported)
16. VFHC VINELAND FAMILY HEALTH CENTER (grants/local tax supported)
17. IHS INDIAN HEALTH SERVICE (TUCSON, ARIZONA) (direct government support)
18. FHCP FLORIDA HEALTH CARE PLAN (no description) (qualified HMOs)
19. NCHP NORTH COMMUNITIES HEALTH PLAN (qualified HMOs)
20. SHA SOUND HEALTH ASSOCIATION (qualified HMOs)
21. BSC BLUE SHIELD OF CALIFORNIA (PSRO)
22. UPRO UTAH PROFESSIONAL REVIEW ORGANIZATION (PSRO)
23. NMPSRO NEW MEXICO PROFESSIONAL REVIEW ORGANIZATION (PSRO)
24. BIACP BETH ISRAEL AMBULATORY CARE PROJECT (research)
25. MFMC MULTNOMAH FOUNDATION FOR MEDICAL CARE (research)
26. CACS CONNECTICUT AMBULATORY CARE STUDY (research)
27. DPMR DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION (UNIVERSITY OF MINNESOTA) (grants/local tax supported)

*Sites are listed in order of appearance on characteristics chart as in Table of Contents.

SUMMARY OF REVIEW SYSTEM CHARACTERISTICS

PARTICIPANT	ADMINISTRATIVE STRUCTURE	TOPIC IDENTIFICATION	CASE SELECTION	DATA SOURCE	CRITERIA AND GUIDELINES USED IN REVIEW	REVIEW PROCEDURES EMPLOYED IN QUALITY ASSURANCE PROGRAM	DECISION-MAKING OF REVIEW SYSTEMS	FEEDBACK PROCEDURES USED FOR QUALITY ASSURANCE PURPOSES
1. CMP	Central QA* project staff, as adjunct to practice, conducts data collection and analysis, presents results to medical director and department chairmen.	Diagnoses chosen for review, both process & outcome variables identified by project staff.	Random sample of medical records.	PQ, MR	Implicit process and explicit outcome criteria for 11 diagnoses.	Patient outcome status determined by using patient's problem status reported via questionnaire, collected during an office visit. Outcomes are assessed through a review of medical process, in terms of relating potential process deficiencies to their effect on outcome.	QA study staff presents results of outcome and process assessments to medical director and chiefs of departments. These personnel responsible for decision to implement recommendations based on results.	Study results reported to medical director who may implement feedback procedures. No formal or systematic feedback procedures designed as part of review system.
2. GHCC	One clerical auditor collects and compiles all data; six-member physician staff assesses data during normal staff meetings.	(a) Outline audit sheet to check data elements required in medical record. (b) Physician staff reviews medical records for problem areas in specific diagnoses.	(a) Complete sample of new patients' medical records. (b) Unspecified sample of medical records with identified diagnoses	POWR	Explicit criteria for analysis of medical record contents; implicit medical criteria for diagnoses.	(a) Clerical auditor examines medical records for required data elements. (b) Physician committee reviews medical records for identifiable problem areas in process of care.	Audits are reported to entire physician staff, who are responsible for deciding gravity of problem and course of action.	Because entire medical staff (6 physicians) takes part in review procedures, feedback is incorporated in system through staff discussions of specific problems. In medical record audits, the clerical auditor, upon finding deficiencies in use of the medical record, will send the identified provider the record for corrections and perhaps patient follow-up, a routine administrative feedback procedure.

*QA - Quality Assurance

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POWR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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3. NCHPP	Central physician review committee examines patient profiles for QA issues: central staff supports committee activities.	Physician examines computerized patient profiles for problems; physicians are identified through this peer review process.	Random samples of approximately 10 profiles per month.	BC	No explicit medical criteria exist; physician peer judgment is implicit.	Family-patient profiles reviewed; physician committee responsible for identifying any deficiency in total care.	Peer review committee physicians make consensus decisions on specific cases already reviewed by one committee member. All committee decisions referred to appellate committee. Decisions are oriented toward provider utilization and education issues.	After physician review, letters are sent to providers requesting more information about a particular case and outlining the problems in a family's medical profile related to provider's activities. Physician is asked to respond to correspondence, to open channels of communication between review committee and providers.
4. MTHP	Entire professional** staff responsible for assessing quality of care activities: one clerk collects data used in QA program; one physician coordinates QA activities and reports to medical director.	Diagnoses chosen for review.	Complete sample (50 - 100) of medical records for identified diagnosis.	POMR	Explicit audit criteria for four specific diagnoses. Implicit criteria used in reviewing all deaths.	(a) Clerical auditor examines medical records for required data elements. (b) Physicians conduct audit and review for specific diagnoses by comparing medical record with guidelines for treatment and answering a series of qualitative questions about entire patient history.	Audit results are presented to medical director who decides what action should be taken.	After audits of specific diagnostic conditions, medical director confers with providers identified as performing below standard. In clerical audit, an administrative assistant communicates with and instructs physicians whose medical records are deficient.

** Professional - Committee includes other providers besides physicians.

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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5. SLPNC	Centralized QA project staff, clinical department committees responsible for identification of QA issues.	Medical and administrative problems identified by department physicians through consensus process.	Random sample of medical records to collect data on problem.	MR	Once problem is identified, explicit guidelines developed to measure existence and degree of problem (24 criteria developed).	Audit data collected from medical record to determine extent of problem; physician representing department assesses audit results, discusses with department physician for resolution of problem.	Remedy Coordinator decides how problem will be resolved within the department. Coordinator may consult with medical director and quality assurance staff. Decisions are based on audit results conducted by QA staff.	Depending on type of problem identified from measurement and results of the analysis, feedback procedures usually entail solutions of identified problems. May include feedback to ancillary, administrative or medical personnel.
6. HCHP	Central professional committee responsible for coordination and management of QA activities which are conducted on departmental level; committee makes appropriate decisions on data collection, compilation and initial analysis conducted by clinical department personnel.	Diagnoses or defined problems reviewed, usually by departments.	Varying number of medical records are examined based on departmental requirements.	CMR	Explicit and implicit criteria used to measure and judge care for specific diagnoses.	Physicians audit medical records for specific problems, usually diagnoses, within their own department. Audit results presented to committee for review.	Medical audits conducted on departmental levels reported to central QA committee, which decides on clinic-wide corrective action in conjunction with departmental personnel or on departmental action only.	Review committee sends physician results of review, and requests comments. Physician must make written or verbal comments to committee to exchange educational information between committee and physician.

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7. GHA	Central physician review committee examines data from reviewed cases of physicians. Committee represents clinical departments. One clerk coordinates data collection and meetings.	Physicians review medical records, are required to give answers to questions designed to identify deficiencies in medical care process.	Time frame sample identifying approximately 90 cases per month for review.	MR	Explicit audit criteria for review of medical records.	Physicians examine entire medical record using specific guidelines or questions addressing entire care episodes; note answers to questions based on information in medical record; make general qualitative statements about entire care episode to physician committee, which reviews physician assessment and medical record.	Professional assistant for QA provides physician committee with results of audit. Committee makes recommendations to medical director, who formulates plan for corrective action in conjunction with department chairman.	Medical director and department chief discuss audit results with providers identified as performing below their capabilities. Feedback procedure is fairly informal, and points out problem areas to physicians.
8. KNC	Director of education oversees QA activities in 12 facilities. Each facility has departmental committees and staff structure for conducting QA activities.	Departmental meetings of physicians to identify problems (medical, administrative) for measurement.	Very limited sample of medical records to identify problems.	MR	Explicit standards developed to measure validity and degree of identified problem topics.	Clerical personnel collect data to measure problem against explicit standards. After measurement, physicians examine variations to decide whether justifiable. Physician notes review comments on worksheet designed to monitor review process.	Measurement of standards and identification of variation at departmental level reported to center-wide medical quality assurance committee. Committee, in conference with departmental personnel, decides course of action.	Reviewing physician presents variation and decision whether variation is justified to review committee. Feedback procedures oriented toward solving departmental and medical center problems, not individual provider problems.

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9. HMOI	Central professional quality assurance committee reviews and acts upon audits conducted by two professional staff members, who present results to clinic staffs and central committee.	Diagnoses in which problems in process and outcome may exist.	Complete sample of medical records with selected diagnostic condition.	MR	Explicit criteria for specific diagnoses.	One physician, responsible for entire QA program, reviews results of clerical audit. Presents results in statistical distribution noting violations of criteria to physician committee.	The director of QA and his administrative assistant report audit results to chief physician at different facilities. Reports are concurrently forwarded to central QA committee. Chief physician has responsibility for deciding action, in consultation with director of QA committee.	Multiple feedback procedures. Based on audit results, physician chiefs in charge of facilities usually hold informal discussion sessions with providers. Another feedback procedure involves instituting programs designed to correct problems identified within the patient population (e.g., administration of blood pressure tests for all adults over 45).
10. NEVHC	Central facility-wide committee, all providers, reviews audit results produced by professional QA staff members.	Most prevalent diagnoses or problem areas reviewed.	Complete sample of medical records containing identified topic.	POMR	Explicit audit elements for specific diagnoses.	Data abstracted from medical record for specific diagnoses. Desired performance levels established; audit presents a percentage distribution of cases which met or failed the performance levels. Physician staff reviews performance levels.	Reports on levels of performance presented to entire provider staff, who decide what action to implement.	Audit results are reported directly to entire medical staff. Self-correction is desired; however, chief physician may informally discuss issues with individual providers.

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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11. DMC	Central committee of 5 physicians conducts audits and assesses impact. Physician Chief of Services responsible for audits and feedback activities.	List of prevalent diagnoses compiled and cases reviewed.	Stratified random sample of medical records chosen to review sample of patients with and without identified diagnosis.	MR	Explicit audit elements for specific diagnoses.	Prevalent conditions identified, explicit standards developed to measure physician treatment performance for these conditions. Physicians examine each record, compare with standards.	Chief physician supervises audits and discusses results with top level (staff) physicians. Chief decides action based on performance levels reported in audits.	Audit results made known to entire medical staff; chief physician discusses with individual providers. Discussions are oriented to specific care elements physician has not been implementing.
12. CHSD	Two central facility-wide professional committees, both chaired by medical director, review audits conducted by clerical auditor. Committees review cases directly, are responsible for taking action.	Most prevalent diagnoses reviewed.	Limited sample of condition.	POMR	Explicit audit elements for specific diagnoses.	After explicit standard developed, charts reviewed to determine percentages indicating whether defined outcome or process values included in medical episodes. Medical record sent to committee to determine appropriateness of care.	Results of audits are presented to medical director, who has responsibility for implementing action. Director discusses audit results with medical council, made up of chiefs of services and key administrative staff personnel, and is responsible for action.	Medical director will discuss problems based on audit results with entire medical council or with individual providers. Feedback emphasizes educational input to physicians, not punitive action. Educational input governed by audit's topic and result.

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13. MLK	Central facility-wide committee responsible for reviewing results of audits and taking action. Reviews conducted by members of seven family health teams.	Outline audit sheet used to examine chart and therefore locate problem areas to review.	Time frame sample chosen for review.	POMR	Explicit audit criteria for medical data that must be in record.	Clerical auditor examines medical records for required medical data entries. Health teams evaluate entire family's medical records for problem areas in process of care, and report to provider committees for action.	Audit results presented to central health evaluation committee. Committee consists of all top level medical and administrative staff personnel, and is responsible for action.	The health evaluation committee conducts meetings with entire health teams to discuss deficiencies in services identified in audit. Specific feedback to providers is conducted in discussion of specific and gross errors in care and potential economic sanctions.
14. HCNHC	Central physician committee conducts audits and assesses impact in seven facilities. Seven-member committee is chaired by department chief at medical teaching institution, who is responsible for program.	Chronic and acute diagnoses (some prevalent, some not) identified for review.	Complete time frame sample chosen for review.	POMR	Explicit audit elements for acute and chronic conditions.	Medical records examined by physician auditors to determine number of required criteria items present in process of care for specific acute and chronic conditions. Results reported to physician committee.	Audit results presented to central committee for decision making.	Based on audits, senior medical staff (clinic chiefs) meetings are used to discuss problem areas and possible corrections. Focus of feedback is not on specific providers, but on problem areas. Information on problem area will go to all providers.

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SUMMARY OF REVIEW SYSTEM CHARACTERISTICS

PARTICIPANT	ADMINISTRATIVE STRUCTURE	TOPIC IDENTIFICATION	CASE SELECTION	DATA SOURCE	CRITERIA AND GUIDELINES USED IN REVIEW	REVIEW PROCEDURES EMPLOYED IN QUALITY ASSURANCE PROGRAM	DECISION-MAKING OF REVIEW SYSTEMS	FEEDBACK PROCEDURES USED FOR QUALITY ASSURANCE PURPOSES
15. HN	Central professional committee reviews audits conducted by physicians. Medical director assesses audits and formulates feedback activities. Ten persons comprise the committee, including chiefs of service, key administrative personnel and medical director.	Outline audit sheet used to identify problem areas to review.	Random sample of medical charts; amount chosen for review varies.	POMR	Explicit audit elements for medical record components, implicit guidelines for physician review of problems.	Physician audits medical records via a set of questions related to existence of required data elements within the record. Also audits records to determine adherence of physicians to explicit practice standards. Results reported to medical director.	Audit of medical record and diagnoses reported to medical director. Director reviews each audit case, then consults with chiefs of service (committee) to decide action.	Medical director reviews audits and discusses deficiencies with specific providers.
16. VFHC	Regular physician staff meetings are used to discuss and assess completed audits. Medical director responsible for taking action with providers, on basis of staff discussions. Clerical auditor reports to medical director.	Outline audit sheet used to assess data elements and documentation requirements in medical record.	Specified sample of medical records, usually all new patient records.	POMR	Explicit audit elements for required medical record data, and for selected diagnoses.	Clerical person audits medical records for required data entries. Specific diagnoses audited periodically by establishing explicit guidelines for treatment and assessing information in medical record.	Audit results given to medical director, who decides action to take with providers.	Problem areas identified are discussed among providers at staff meetings.

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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17. IHS	(r e f e r t o D e s c r i p t i o n)			EF	Explicit protocols and staging criteria for specific diagnoses.	Information collected for patient populations with potential high risk factors for certain disease conditions. Initial information places patient at a stage of disease development. Medical process audited for established protocols. Performance levels (percentage of protocol elements completed) available to providers through interactive computer program and terminals.	Audit results made available to individual providers and health system managers. Decisions made by several key physicians (fairly informal manner) regarding actions (allocation of resources based on audits of population-based problems).	Providers receive feedback by interacting with computer audit program which details their performance level. Senior staff physicians can informally approach providers for education discussions; however, computer program identifies specific deficiencies to be corrected.
18. FHCP	Two committees (peer review, external review) are responsible for assessing aspects of medical care. Medical director and executive vice president responsible for correcting deficiencies discovered in review. Each committee has five members; both committees include professionals other than physicians.	Review of medical records to identify deficiencies in process of care.	Random sample of medical records.	MR	Implicit criteria for examining medical cases.	Medical records examined by physicians for episodes of care to identify inappropriate utilization of procedures.	Audit results discussed by one central committee, the medical director having responsibility for taking action.	Medical care issues discussed in medical staff meetings. Medical director and executive vice president take personal action with physicians identified as making errors in any aspect of medical care.

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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19. NCHP	Central professional committee conducts audits and assesses impact. Health information director coordinates audits and compiles results. Medical director formulates feedback activity plan.	Outline audit sheet used to identify deficiencies in care.	Sample of medical records.	POMR	Explicit criteria for medical record review.	Physicians use checklist of medical record items which must be included in care of all patients. Results discussed by provider committee.	One central committee (all full time physicians) reviews audit results. Medical director has responsibility for action-taking, uses committee to formulate decisions.	Medical director reviews audit results, formulates and coordinates educational plan for specific providers or group of providers.
20. SHA	Medical director responsible for conducting audits, reports results of quality reviews to executive director. Medical director interacts informally and individually with physicians regarding review matters.	Medical director reviews medical records to identify inappropriate patient outcomes.	Random sample of medical records.	MR	Implicit criteria for review by medical director.	Physician review of medical records to identify inappropriate processes, and how each relates to patient's history.	Medical director makes all decisions regarding QA issues. Consults with physician staff and executive director.	Medical director conducts informal discussions with providers on specific medical care issues.

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21. BSC	(refer to Description)	Medical procedure norms computed for specific diagnoses within specialty groups; physicians are reviewed if they exceed norms.	Complete sample of submitted billing claims.	BC	Explicit medical procedure criteria for specific diagnoses.	Norms computed for different specialty groups are used to excerpt individual provider claims. If provider identified as exceeding norms, detailed provider payment history is produced for physicians to evaluate for potential inappropriateness of care over an extended period of time.	Physician reviewers examine provider cases that demonstrate high rate of exceptions in specified period. Reviewers make decisions based on assimilation of claims data, which identifies provider practice by listing type of medical procedures prescribed for specific diagnosis and specialty areas.	(refer to Description)
22. UPPO	Results of computerized review coordinated by administrator for physician review. Physicians diagnose problem cases in seven categories. Reviews forwarded to Education or Ambulatory Care Evaluation Committee to review and formulate feedback activity plan.	Physician reviewer examines patient and provider provider files to identify physicians with inappropriate patterns of care.	Complete sample of submitted billing claims.	BC	Explicit guidelines to measure usage of procedures for specific diagnoses within specified time.	Physician reviewer examines history of services provided and record of acceptable medical procedures excerpted based on explicit utilization guidelines. Examines for inappropriate pattern of utilization for both patients and providers.	Patterns of inappropriate care identified by physician reviewers and by review of computer printouts noting exceptions, payment and patient histories, placed in one of seven disposition categories. Review physicians contact providers directly to discuss case. Results of review forwarded to physician committee, which oversees review and communicates directly with providers.	(refer to Description)

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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23. NMPSRO	Medical director responsible for ambulatory review system output and feedback activity plan. Two committees (Education, Ambulatory Care) assess reviews conducted by physician reviewers and formulate feedback plan based on review recommendations. Committee report to medical director and executive director. One administrator coordinates review material for physicians and interacts with committee members.	Physician deviation from central tendency figures are reviewed for specific medical procedures related to diagnoses.	Complete sample of submitted billing claims.	BC	Explicit guidelines to measure usage of medical procedures.	A sample of physicians reviewed prior to payment for service by clerical review of medical procedure exceptions (based on frequency of procedures) for specific diagnoses or specialties. All physicians reviewed initially by a review coordinator who examines computer reports (profiles of patients and providers) for inappropriate therapeutic and diagnostic procedures. Results are forwarded to physician reviewers, and ultimately to physician committees.	Problems based on provider exceptions reviewed by review coordinator and review physicians and forwarded to two physician committees: (a) Education Committee and (b) Ambulatory Review Committee. Committees responsible for type of action taken such as education or economic sanctions. Medical director takes all direct action with providers.	(refer to description)
24. BIACP		Acute and chronic conditions chosen for development of protocols.		EF	Explicit protocols for treatment of acute and chronic conditions, some used in audits.		(refer to Description)	

DATA SOURCE KEY: BC - Billing Claims, EF - Encounter Forms, MR - Medical Record, POMR - Problem Oriented Medical Record, PQ - Patient Questionnaire

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25. MFMC		Specific diagnoses chosen for review.		MR	Explicit criteria for specific diagnoses.		(refer to Description)	
26. CACS		Specific diagnoses chosen for review.		MR	Explicit criteria for specific diagnoses.			
27. DPMR	One departmental committee has overall responsibility; two subcommittees respectively select and assess review topics.	Team of providers conducts meetings to identify topics for review and estimate severity of problem.	All cases of those patients with selected topic diagnoses.	PQ, MR	(refer to Description)	A physician committee estimates patients' achievable benefits (outcome) for specific disease conditions that were not achieved. A measure of patient functional impairment is determined by measuring patient status with predetermined outcome standards.	Two teams of physicians receive results of outcome studies conducted by clerical person. Team decides appropriate action to be taken.	Using results of review and measurement of disparity between potential and achieved benefits, review committee will direct physicians to implement certain activities for specific segment of patient population in order to enhance outcome status.

COLUMBIA MEDICAL PLAN

Columbia, Maryland

SECTION I

I N T R O D U C T I O N

The Columbia Medical Plan (CMP) was formed in 1969 through the joint activities of Connecticut General Life Insurance Company (CG) and the Johns Hopkins University in order to jointly develop and operate a prepaid health care system for residents of Columbia, Maryland. This multispecialty group practice serves approximately 20,000 enrollees in Columbia, Maryland, and the surrounding area. The Columbia Division of the Johns Hopkins Health Service Research and Development Center (JHHSRDC) conducted quality assurance research at the Columbia Medical Plan. Research was funded as an Experimental Medical Care Review Organization (EMCRO) by the National Center for Health Services Research.

The Columbia Division of JHHSRDC had been inaugurated at CMP prior to the EMCRO grant, and the quality assurance research was only part of a larger research enterprise. The association with Johns Hopkins HSR&D Center is critical for CMP in accomplishing the goal of maintaining a close relationship between academic activities and an operational health care plan. CMP is viewed as an operational test site for health services research issues.

The EMCRO project was designed to develop and test an outcome-based methodology for quality assurance in primary care. The program was included in this study because of the unique opportunity to examine an interface between outcome-based quality assurance research and the operations of a primary care health plan.

SECTION II

QUALITY ASSURANCE PROGRAM

The Columbia Medical Plan - Experimental Medical Care Review Organization (CMP-EMCRO) quality review efforts combine the implementation of certain research studies in an operational delivery system that has the potential to implement procedures based on study results. Unlike other quality assurance programs, CMP-EMCRO documentation reflected an existing and operational rather than a planned program. Therefore, this section will describe operational quality assurance studies conducted by the CMP-EMCRO staff. The description will not present study results, but only quality assurance methodologic information. The following discussion is divided into three major areas:

1. General view of the EMCRO research project and methodology
2. Descriptions of the studies implemented, including a pilot study, Round I and II studies in accessibility, problem-status outcome assessment and the study of telephone care
3. Use of the CMP-EMCRO study results as a basis for implementing administrative and organizational changes at CMP

BACKGROUND

Development of the program was stimulated by three sources:

1. The availability of funds from the National Center for Health Services Research for research in quality assurance methods
2. Availability of an operational and research setting, Columbia Medical Plan
3. Existing relationship between JHU and CMP, and the accompanying research and medical expertise

In February, 1976, the CMP-EMCRO staff included:

1. Research Program Manager
2. Research Associate
3. Biostatistician (part-time)
4. Two Research Assistants
5. Medical Record Data Clerk (part-time)
6. Secretary (part-time)

The central feature of the CMP-EMCRO project is outcome assessment of ambulatory care as a means of determining the quality of care within a particular delivery setting. The CMP-EMCRO project attempts to conduct rigorous research closely linked with operational medical care delivery. The outcome assessment methodology is designed not only to develop a method for determining the level of quality, but also to identify deficiencies in the delivery of medical care that result in substandard outcome.

The CMP-EMCRO incorporates a specific research strategy to develop measures of quality appropriate for an HMO and to test their utility by demonstrating that their application can lead to identification of correctable deficiencies in the delivery of care.

The CMP-EMCRO approach to quality assessment assumes "that the development of a meaningful system can best occur in a stepwise, incremental fashion. In other words, that quality assurance occurs in a series of rounds when data are gathered, instruments and measures tested, results reported and the utility of the measures for identifying problems in delivery of care examined." In developing an approach to measuring quality of care, CMP-EMCRO investigators chose to measure variables related to accessibility of care and the patient's problem status outcome as indication of quality. To determine reasons for poor access or substandard outcome, medical records for the study population are reviewed.

In terms of specific quality assurance studies conducted by the CMP-EMCRO there have been several areas of investigation:

1. Population-based accessibility studies
2. Development and testing of patient-reported problem status as an indicator of quality
3. Determination of medical care process as a search for reasons for substandard outcome to test the quality assurance potential of an outcome strategy
4. Assessment of process of medical care for common conditions as indicators of quality
5. Quality of telephone care by nonphysician personnel

The first area of research addressed by CMP-EMCRO was the development of specific research methods for each study area noted above. Four major enrollee questionnaires were administered: a pilot test in April, 1973; EMCRO Round I between October 1 and 17, 1973; EMCRO Round II, May 22 to June 13, 1974; EMCRO Round III, October 17 to 31, 1975.* In addition, a study of the quality of telephone care by nonphysician personnel was conducted in November, 1974.

Accessibility of CMP services to the enrolled population was the first area studied in a pretest before the actual funding of EMCRO. After developing the patient questionnaire, staff mailed questionnaires to a random sample of 10% of the enrollees in April, 1973. The questionnaire collected information in three areas:

1. Persons with problems during a specified period of time who sought and received care
2. Persons with problems who sought care, but did not receive it
3. Persons who did not seek care

* Since the results of the third EMCRO study were not available at our visit, that study is not included in this description

The CMP-EMCRO staff considered this sample a pilot study in terms of measuring enrollee response (959 of 1339 enrollees returned questionnaires), discovering the extent of accessibility problems, and collecting initial data for future comparative studies of accessibility.

Rounds I and II under EMCRO (October, 1973, and June, 1974) included accessibility studies, problem status outcome determinations and reviews of medical care process, to identify reasons for substandard outcome.

Round I

The Round I visit questionnaire was designed to measure and assess access to care of a sample of patients with a medical problem. CMP-EMCRO personnel emphasized that a large part of Round I was developmental and was an attempt to assess certain quality assurance methodological issues in order to insure proper questions would be addressed in subsequent rounds.

The Round I data collection included two questionnaires, the first administered to patients during a visit and the second mailed to them approximately one month after the visit. The first questionnaire was designed to collect information on the effort involved in arranging for and receiving care (access) and the patient-reported problem status at the time of visit. The second questionnaire was designed to determine outcome by measuring a patient's problem status one month after the encounter.

Concurrent with this data collection and based on frequency data, the staff selected eight common problems for which criteria were developed to assess accessibility and outcome. Process of care was examined through review of charts of those patients with one of the identified problems. This review was exploratory and was designed principally to begin defining the utility of process or outcome reviews to assessing quality of ambulatory care. The sample distribution of the first questionnaire was 740 well-person visits, and 1560 problem-related visits.

Follow-up questionnaires were returned by 74% of the 1560 problem visits, and the eight problem types accounted for 21% of the problem visits. The analysis conducted for the eight problems involved a chart review of patients having one of the problems (327 cases = 0.21×1560). The eight common problems included otitis media, upper respiratory infection (URI) and sore throats (Pediatrics); URI, sore throats, hypertension and abdominal pain (Adult Medicine); and vaginitis (OB-GYN); and were examined to evaluate accessibility and problem status outcome.

Three sets of criteria were developed for this study:

1. To assess accessibility for eight problems
2. For outcome of care
3. For process of care

Criteria for accessibility were developed by a panel of consumers, administrators and physicians, outcome and process criteria by three panels of CMP physicians from various specialties. Accessibility criteria were set for two variables:

1. Access interval, defined as the length of time measured in days between the first contact (to arrange visit) and the visit
2. Contacts, defined as the number of interactions an enrollee has with clinic personnel, either by telephone or in person, to arrange a visit

The criteria development panel established acceptable and unacceptable values for each problem type. Aggregate results were presented as percentage distribution of patients meeting the criteria. These data were taken from completed questionnaires.

The criteria for effectiveness of care (measuring process and outcome) were developed by CMP physicians through group discussions and consensus within specialty areas. The three levels of review in Round I were:

1. Determining compliance with explicit process criteria
2. Determining compliance with explicit outcome criteria
3. Implicit evaluation of medical records of patients not meeting all outcome criteria to determine reasons for poor outcome

Results of the process criteria review were displayed by noting the percentage of rates of compliance by patients presenting one of the eight common problems. The CMP-EMCRO staff explored the relationship between the explicit process and outcome reviews, reporting that although little statistical relationship existed between the two variables, outcome was felt to be improvable for many of the cases with substandard outcome.

Round I studies were concluded with a presentation of study results at a series of meetings with CMP physicians and the EMCRO committee aimed at enabling CMP personnel to incorporate results into program management. Round I study results represent only the first step in total program development; CMP-EMCRO personnel noted that the real thrust of Round I was to begin identifying methodological issues and questions to be examined in succeeding studies.

Round II

Round II was designed to further develop and test the outcome methodology initially implemented in Round I. Round II studies were based on a sample of CMP enrollees who visited the clinic between May 22 and June 17, 1974. Two reports were initially produced from this sample:

1. "Accessibility to Visits at CMP," November, 1974
2. "Use of Patient-Reported Status," May, 1975

Whereas Round I results were compiled and reported in one report, the CMP-EMCRO staff reported issues and results separately for Round II. Most of the methodology employed in Round I was used in Round II, with some modifications. The number of common problem types to evaluate was expanded to seventeen, adding noninfective dermatitis in both Pediatrics and Adult Medicine, conjunctivitis and allergic rhinitis in Pediatrics, back pain in Adult Medicine and lacerations and removal of skin growth in surgery. Problems were chosen on the basis of frequency of occurrence.

The Accessibility Panel was reconstituted and guidelines from Round I were reconsidered. New guidelines were developed by physicians meeting by specialty groups, who sent revisions to the Panel for comment.

As a result of the Panel's consensus, criteria were specified for a maximum number of days a patient with one of the study problems should have to wait between initial contact with the clinic and time of visit. The panel decided the number of days for each problem by first or follow-up visit categories. They also determined that the maximum days allowed should be based on four levels of symptom intensity:

1. No discomfort or pain
2. Some discomfort or pain
3. Moderate discomfort or pain
4. Considerable or extreme discomfort or pain

Information measuring symptom intensity was recorded as part of the questionnaire administered during the patient visit.

Follow-up visits were also evaluated for accessibility. Physician-initiated visits were reviewed by CMP-EMCRO staff case by case. The medical record was reviewed for two data elements:

1. The date at which the physician told the patient to return
2. The actual date the patient returned

The May to June, 1974, questionnaire was administered to 2,237 patients during the study period, of which 1,719 were problem-related visits. The 17 problem types accounted for 713 of the total problem visits. Follow-up questionnaires to measure outcome were mailed to all patients who visited for a problem.

The Round II study focused on the CMP-EMCRO goals to develop and test outcome measures. CMP-EMCRO staff indicated problem status was implicit in the method, as it was in Round I, because a primary purpose of ambulatory care is to assist in the resolution of problems; thus a quality assurance method must be sensitive to this important objective. Further broader health status measures (morbidity, immunizations, etc.) were too insensitive to measure specific problems and their resolution. The questionnaire measured problem status according to four parameters:

1. Symptom frequency
2. Symptom intensity
3. Degree of activity limitation
4. Amount of patient anxiety

In terms of criteria for the four dimensions, CMP physicians in each specialty set explicit outcome criteria for the selected conditions by group consensus. Physicians determined qualitative maximum levels for each parameter based on a one-month time interval. These criteria were compared with information collected from a second mailed follow-up questionnaire to measure outcome one month after the initial visit. The same four parameters were measured in the second questionnaire. Both questionnaires required the patient to rate himself on a scale from "none" to "extreme" for each of the four parameters.

Specific study components of Round II, as a result of the cyclical study design, were much more defined in the manner of measurement than the same Round I components. In addition to the general sample, care for eleven problems was extensively evaluated. This analysis generally followed Round I methodology.

1. Problem-status outcome was measured and criteria applied
2. Medical records of all patients failing to meet outcome criteria and a sample of those meeting criteria were reviewed using explicit process criteria as well as implicit judgments to determine:
 - a. Was poor outcome due to error in care process?
 - b. Could this level of outcome be explained by another medical problem which complicated this episode?
 - c. Could outcome have been affected by progression of the initial problem into another illness?
 - d. Is follow-up problem status being affected by another episode of the illness rather than poor outcome of the original episode?

The major component of Round II was CMP-EMCRO exploration of the importance of cases that did not meet outcome criteria (bad outcome) by thoroughly examining the process of care. This was accomplished by conducting a detailed medical record review of a sample of cases meeting the criteria and all cases failing the criteria. The records were reviewed using both implicit and explicit medical criteria for a number of selected audits (noted above). The CMP-EMCRO staff wanted to pinpoint possible differences which existed in the medical care process for cases that met or failed the outcome criteria, thus relating process to a measured outcome. The differences were usually associated with errors in the process of care. This type of review enabled the CMP-EMCRO staff not only to link process with good and bad outcome, but also to report independently the results of a process review of selected cases.

Three basic judgments were made during the review:

1. Judgment of diagnostic process based on the explicit criteria (medical record elements like history, physical examination, laboratory tests used to establish diagnosis)
2. Judgment of therapeutic process (correctness of treatment regimen, follow-up, other instructions, drugs prescribed)
3. Judgment of diagnostic outcome (whether diagnosis was correct given the information in medical record and, if not, whether the correct diagnosis should have been made sooner)

Judgments were made by physician reviewers after explicit review had been completed by CMP-EMCRO staff. The object of this three-level review was to determine reasons for poor outcome. Poor outcome could be related to deficiencies in the process of care, methodological errors in problem classification, errors in measurement or problem status, or errors in explicit criteria.

An important part of the methodology and review process is the use of an implicit physician review procedure. This review method was tested for methodologic purposes (i.e., to test the utility of an outcome-based approach). It is not being advocated as a practical approach to continuing evaluation of care. Total care must consider complicating factors (e.g., patient characteristics, other illnesses and social problems) to accurately evaluate the outcome of specific cases. After completing the review of the cases, the physician reviewers were asked to classify the outcome itself in one of three ways:

1. Unimprovable outcome - no other interventions were likely to improve outcome for a specific patient
2. Definitely improvable outcome - some intervention could have improved patient outcome
3. Possibly improvable outcome - outcome could have been better, but there was no evidence in medical record that would definitely achieve such

The base information used in this evaluation was the patient's reported outcome (problem status) gathered from the follow-up questionnaire. These reviews were conducted by one CMP physician who evaluated all cases and a second non-CMP physician who reviewed a 30% sample of cases to insure accuracy. Both physicians met after reviews were completed to resolve disagreements, and to record a final judgment.

Telephone Care

The study of telephone calls involved assessment of the content and quality of telephone care "within a pediatric practice which has trained health assistants to evaluate, perform triage and offer home management advice for problems presented by parents." Because of the high volume of pediatric telephone calls received by the health center and the consequent health care advice provided over the telephone, the study was conducted to test the applicability of an outcome strategy for assessing the quality of telephone care. The purpose of data collection and evaluation was "assessment of end results of care for problems advised by telephone in lieu of a clinic visit." CMP-EMCRO staff developed an encounter form to collect the following data elements for each call:

1. Patient's name and age
2. Purpose of the telephone communication
3. Nature of presenting problem (problem status)
4. Disposition of the case
5. Whether or not consultation was obtained

Data were collected from 2,520 telephone calls received during health center hours (October 14 to November 9, 1974) and 516 calls during weekends and evenings. One week after initial telephone care was received, a follow-up telephone interview was conducted by an independent interviewing agency in 264 of those cases given advice in lieu of a visit. The resulting information was compiled and compared with established criteria developed by CMP pediatricians in a departmental meeting, indicating symptoms and potential disability that were acceptable outcomes for specified problems. There were two basic problem types: immediate care and administrative (future appointments, assistance, etc.).

Access to telephone care was measured by tabulating the number of attempts a caller made to obtain care. Caller satisfaction was determined by asking parents to report satisfaction received in five areas:

1. The decision to care for the child at home rather than at the clinic
2. The quality of home management advice they received
3. The extent to which their questions were understood
4. The extent to which their questions were answered
5. The degree of interest shown by the provider

Further satisfaction analysis by the staff resulted in development of a four-point index of degree of satisfaction, ranging from very satisfied to very dissatisfied.

To assess outcome, the staff examined cases in which visits occurred after the telephone care. A clinical evaluation was used in conjunction with the patient's reported problem status one week after the telephone care incident. This assessment was designed to determine two points:

1. Whether delays in receiving treatment after initial triage decision were evident
2. Whether there were cases of unresolved problems in which patients did not secure further care

A chart review was conducted after the clinical evaluation was completed to determine the number of patients diagnosed with treatable and nontreatable illnesses. Chart reviews were completed on 14 cases (0.05 x 247), where patients were diagnosed with treatable illnesses.

Implementation of CMP-EMCRO Results

Although quality assurance studies are not formally connected with the administrative operations of CMP, study results are available to all CMP personnel for use in administrative and clinical areas.

Interaction between the CMP-EMCRO research function and CMP administrative activities is described below, based on interviews with personnel regarding this specific point, and two memoranda from CMP-EMCRO staff to CMP clinical chiefs regarding process reviews for urinary tract infection and sore throat, and review of care for hypertension.

In terms of implementing study results at CMP, several areas were identified:

1. The accessibility study supported administrative actions to change appointment-making procedures by identifying several key problem areas and suggesting alternative administrative solutions.
2. The review of outcome by measuring problem status for vaginitis (patient-stated problem status) indicated physicians in the OB-GYN department were not communicating with patients satisfactorily, and that patient expectations were inflated. This subject was discussed with physicians, and one indicated it was helpful in subsequently dealing with patients.
3. The telephone study had two major effects: (a) it supported the role and use of nonprofessional health assistants in providing pediatric services, and (b) it changed some policies for handling telephone care.
4. The two rounds of patient-reported problem status outcome evaluation and subsequent process reviews to determine reasons for poor outcome led in one department to educational sessions on the management of urinary tract infection and hypertension.
5. Process chart reviews have been analyzed and reported to the various clinical departments. These have also been used by some physicians, but only at their own discretion.
6. CMP-EMCRO project personnel were asked to serve on an ad hoc committee reorganizing the Adult Medical Department.

Several CMP practitioners who have particular research interests or want data addressing a specific problem did examine EMCRO data, although no CMP physicians except the principal investigator and the Chairman of Pediatrics participated in conceptualization or investigation of EMCRO quality assurance issues. The two memoranda document interactions regarding specific disease conditions between CMP-EMCRO staff and CMP clinical chiefs. The memoranda refer to meetings in which specific EMCRO reviews were discussed and outlines of specific EMCRO suggestions (e.g., medical record recording, necessary medical procedures missing, reduction of laboratory tests, lack of sufficient justification for diagnoses, communicating with patients, physicians' educational sessions and guidelines for follow-up) were presented.

ADDITIONAL COMMENTS

The CMP-EMCRO study enjoys considerable support in four important areas:

1. The patient population, predominantly white middle-class, is receptive and responsive to patient questionnaires which are the data base for EMCRO studies.
2. The medical record room staff assists CMP-EMCRO in pulling and processing medical records.
3. The administrator of the plan is supportive of research activities.
4. The medical staff willingly assists CMP-EMCRO in different studies.

Round III data collection was completed between October and November, 1975, but results were not available at the time of this report. Round III sought to develop further measures of access and outcome and to test their utility for quality assurance purposes. This round also included a random sample study (January, 1976) of the CMP membership to evaluate access to care in the population.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The two main organizations at CMP are the Connecticut General Life Insurance Company (CG) and the Patuxent Medical Group, a physician service corporation.

Support from Connecticut General has been substantial for two reasons:

1. Connecticut General's substantial investment in the community of Columbia
2. Connecticut General's willingness to underwrite the delivery of medical services through alternative funding mechanisms

The Columbia Medical Plan is jointly administered by Connecticut General Medical Programs (CGMP) and the Patuxent Medical Group; CMP operates as a division of the CGMP.

Administration of CMP includes the following specific components:

1. The Medical Director (from physicians' group) and Administrator (representative of CGO, who jointly directs the operations of CMP)
2. Clinical staff
 - a. 4 FTE* - Internal Medicine
 - b. 3 FTE - Pediatrics
 - c. 2.7 FTE - OB-GYN
 - d. 1.8 FTE - Surgery
 - e. 1.8 FTE - Psychiatry
 - f. 0.8 FTE - ENT/Ophthalmology (contract with two ophthalmologists for 0.6 FTE)
 - g. 3 FTE - Medical health counselors
 - h. Orthopedic, dermatologic and neurologic services are contracted
3. Administrative staff
 - a. 1 controller
 - b. Administrative assistant
 - c. Marketing manager
 - d. Patient relations officer
 - e. 36.0 FTE receptionists, secretaries, telephone operators, record room clerks
 - f. 8.9 FTE paramedic-health assistants

Services offered include all primary services in pediatrics, internal medicine, OB-GYN, ENT-ophthalmology, psychiatry and dermatology, as well as radiology, laboratory, emergency care and pharmaceutical services.

CMP serves a population of 20,000, with the majority from Columbia, Maryland, and the outlying county area. Methods of payment include prepaid monthly rates, with different rates for individual, family and employer-employee groups.

*Full-time equivalent

CMP's main affiliation is with Johns Hopkins University. Specifically, CMP is affiliated with two entities within the Johns Hopkins Medical Institutions, although not in the same way: the Johns Hopkins Health Services Research and Development Center and the Johns Hopkins School of Medicine.

All CMP physicians have faculty appointments at the Johns Hopkins School of Medicine. CMP's Research Protocol Review Committee continues the long-standing relationship between CMP and the Johns Hopkins Research and Development Center and a representative of the Center is an ex officio member of this committee.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

CMP-EMCRO agreed to participate in the study during a telephone conversation (December 9, 1975) and in correspondence (December 22, 1975). They were included in the study to represent a site where quality assurance research activities were being conducted in conjunction with the implementation of administrative quality assurance activities. The interrelationship between research and an operational delivery system is important in determining the status of CMP's ambulatory quality assurance. Initial documentation was received from CMP-EMCRO in December, 1975. The documentation outlined several research studies that had been implemented at CMP and described the results of the studies. The documents received, prior and subsequent to the site visit, include:

1. An experimental Medical Care Review Organization in an HMO (October 1974)
2. The Use of Patient-Reported Problem Status in Evaluating Ambulatory Care (May 3, 1975)
3. Quality of Telephone Care: Assessment of a System Utilizing Nonphysician Personnel
4. Quality Assurance in Ambulatory Care: A Strategy Based on Outcome Assessment (April 6, 1976)
5. Quality Assurance in Hypertension; Memorandum (July 31, 1975)
6. Process reviews for urinary tract infection and sore throat; Memorandum (August 14, 1975)
7. Accessibility of Medical Care in a Health Maintenance Organization (March 20, 1974)
8. Accessibility to Visits at the Columbia Medical Plan; Second Round Report (November, 1974)
9. Evaluating Access to Ambulatory Care (May 4, 1975)
10. Chart Review Form
11. Quality Assurance Program Questionnaire - Adult Medicine
12. Quality Assurance Program Questionnaire - Pediatrics
13. Quality Assurance Follow-Up Questionnaire - Pediatrics

These documents were thoroughly reviewed prior to the site visits made on two occasions: February 2, 1976, and April 23, 1976. The following personnel were interviewed:

1. Research Project Manager, Columbia Division (EMCRO Project)
2. EMCRO Research Associate (responsible for data collection, compilation and analysis)
3. Medical Director, Columbia Medical Plan, and President, Physicians Service Corporation
4. Chairman, Pediatrics Department, Columbia Medical Plan
5. Plan Administrator, Columbia Medical Plan
6. Consultant to Columbia Medical Plan from the John Hopkins Health Research and Development Center on management information system
7. Director, CMP Drug Utilization Study

Total interview time amounted to approximately 10 hours. The interviews were not audio recorded, but investigators compiled extensive hand-written notes.

General topics covered during the interviews were:

1. Background information regarding the development of CMP-EMCRO
2. Relationship between CMP and John Hopkins Health Research and Development research interests
3. Development of each of the quality assurance studies, including accessibility, problem status, telephone care and process reviews of specific disease conditions
4. Development of new research questions as EMCRO was implemented
5. Implementation of study results in Columbia Medical Plan operations
6. Role of Physicians Service Corporation in research activities
7. Role of Connecticut General (past, present, future) at CMP, and its interest in EMCRO research activities
8. Financial status of CMP
9. CMP use of EMCRO study results
10. Importance of active research activities at CMP
11. Specific methodological elements of the various quality assurance studies

The majority of the interview time was spent with the first two officers, although a minimum of 40 minutes was spent with each interviewee.

GIVEN HEALTH CARE CENTER

Burlington, Vermont

SECTION I

I N T R O D U C T I O N

Given Health Care Center (GHCC) is a privately owned nonprofit group practice situated within the University of Vermont Medical School. It serves a patient population of approximately 11,000 primarily from Chittenden County, Vermont, and provides services in Adult and Adolescent Medicine. The staff of GHCC initially came from the University because of its interest in developing a small ambulatory group practice within a university setting.

GHCC was formed for the following three basic reasons:

1. To teach third and fourth year medical students in a small group practice situation via a project grant from the Office of the Dean of Medicine at the University of Vermont.
2. To allow students to practice in an ambulatory setting where staff would provide role models for private practice. The students would also learn about audit procedures, quality assessment activities, and peer review functions. This approach would be unique in training new physicians to accept quality assurance programs as part of the provision of medical care.
3. To use GHCC as a testing ground for new ways to deliver efficient medical care and to determine cost requirements for providing these services to an expanding population by a small core of providers.

The GHCC practice is supported largely by fee-for-service financing, although there are 200 to 250 medical students who receive care on a prepaid basis. Out-of-pocket expenses account for 25% of total income; Blue Cross-Blue Shield, Medicare and Medicaid account for 50%; and group employment insurance, 25%. GHCC research and development are supported by grants from Kellogg Foundation and Commonwealth Fund. These grants were awarded to develop treatment protocols, patient flow, etc., for patients with chronic illness, and to develop new teaching approaches.

A five-member physician staff and two house practitioners provide all primary clinical services. GHCC was included in the study because of its substantial experience with Problem Oriented Medical Record (POMR) audit procedures.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The discussion of GHCC's Quality Assurance Program will be divided into two major sections:

1. The elements of GHCC's Quality Assurance Program documented in GHCC's Principles of Practice
2. The operational status of program based on information collected during the on-site investigation

BACKGROUND AND FORMALLY PLANNED ACTIVITIES

Documentation provided by GHCC indicated the POMR is the cornerstone of the GHCC type of delivery system and audit review program. All medical encounter information is typed in the medical record to facilitate different types of audits. The POMR system has three operational components:

1. A system of care based on the four phases of medical action: data base, problem identification, plans for addressing problems, and follow-up
2. Use of POMR for organizing patient information
3. Use of audit for all providers of care with a structured method of feedback to assure adherence to standards

The documentation notes specific requirements for compilation of data base information, periodic evaluation of patients after initial evaluation, identification of and documentation of problems and associated plans, and follow-up to original plans.

Audit goals and principles are described as an integral part of use of the POMR, with specific audit questions outlined for each POMR component. The purpose of audits at GHCC is administrative as well as medical:

1. To assure the patient specified standards of care are met
2. To provide continuing education for all providers
3. To evaluate and correct the standards of a health care system through the feedback of information generated by an audit system

Audit procedures as outlined in the Principles of Practice are general, and do not necessarily apply to a specific audit program. Desirable concepts and attitudes toward audit procedures are outlined, while some components that should be included in an "effective" audit system are identified:

1. A clearly stated organizing principle (e.g., GHCC's is a POMR) must be selected
2. Providers must agree explicitly on the content and application of the system

3. A standard means of organizing medical information must be used

Subjects and objects of audit and review were identified as:

1. Patients (auditing their own POMR)
2. Physicians, nurses and paramedical assistant (peer review of POMR)
3. The delivery system (clerical review of POMR)

Questions that should be asked as each area of the POMR is audited are as follows:

1. Audit of Each POMR Component:

a. Data Base

- 1) Have the data that physicians and nurses agreed to collect been collected? If not, explain (in writing).
- 2) Have abnormal findings been acted upon? If not, why?
- 3) Have individuals complied with practice standards? If not, need evidence of support for disagreement.

b. Problems List - Audit Questions

- 1) How thorough has the individual been in listing all problems evidenced by the data base?
- 2) Has the problem been defined at a level of synthesis for which evidence from the data base is available? When available data lead to various interpretations, it is the auditor's function to review and make sure plans are logical and will carry the problem to a higher level of resolution.

c. Plans - Audit Questions

- 1) Is the plan for more information complete so the problem for which the patient is potentially at risk is reversible or treatable? Has it been recognized and appropriately ruled out?
- 2) Have the variables required for the management of the problem been recognized?
- 3) Is a clear goal stated for treatment and is treatment likely to achieve this goal?
- 4) Is there a plan for patient education and is it stated clearly?

d. Follow-up - Audit Questions: As new data become available, is the problem appropriately modified?

2. Audit of Health Care System

- a. What happens to the people who are being given care (the study of outcomes)?
- b. How efficiently are resources used?
- c. How effective is leadership within the system in asking these questions? Does the design of the system allow for rapid response?

Documents indicate each provider should devote an hour per week to auditing, with group members dividing themselves into audit pairs. The cost of auditing will be incorporated into the overhead expense of the practice.

There are six actions which can be taken by the entire provider group based on audit results:

1. Disagree with the audit results
2. Decide to review the problem again in one month
3. Decide to change the auditor
4. Agree with the audit and request physician to correct situation
5. Request outside consultant to review the problem (member being audited has the same right)
6. Request for resignation if member fails to improve performance within a period of six months

Principles of Practice includes four audit forms designed to guide each audit process. The forms outline systematic data elements or questions which must be addressed and are entitled:

1. Patient Review of Medical Record
2. Clerical Audit
3. Procedural Audit
4. Physician Audit

These forms are not described in terms of their use in specific audits; they seem to be data collection forms for all forms of review.

A final area of review, Data Reduction, is outlined as follows:

1. Review existing records for problems or potential problems not on problem list
2. Organize existing data into POMR format
3. Reduce and organize existing data to increase physician efficiency

This process seems to be incorporated in the Clerical Audit described in the next section, Operational Activities.

OPERATIONAL ACTIVITIES

GHCC personnel interviewed during the site visit reviewed the documented results of audits described in this section with investigators. Investigators did not collect any written documentation (e.g., audit results or minutes) on the audits.

Five distinct audit programs were identified as operational:

1. Patient audit of own records
2. Clerical audit of POMR

3. Procedural audit (data reduction)
4. Quality assurance audit (physician and problem-identified audits)
5. Follow-up audits

The Clerical, Procedural and Problem-Identification audits (No. 2, 3 and 4) are conducted by an employed auditor, who works 15 to 20 hours per week, and is also available for special audits. Patient audit (No. 1) is performed by the patient; follow-up audits (No. 5) are performed by physicians.

Patient Audit

GHCC staff indicated the importance of consumer involvement in all aspects of care. The patient audit procedure begins when the medical record is sent to each new patient with an explanatory cover letter. New patients are those who have just entered the GHCC patient population, and have had their initial health evaluation (data base) completed. The patient reviews the entire record to determine if information is correct and if his interpretation of the problem is the same as that of the provider. He is asked to look at the priority statement and decide what problem should be treated first; these provider-compiled priority statements are stated in the actual document. The patient reviews the "SOAP" component of the POMR, which is defined as:

"S" (subjective data) - Historical information gathered from patient. Patient is to read carefully and check for accuracy.

"O" (objective data) - Results of tests and examinations related to the problem.

"A" (assessment) - Interpretation of the findings from "S" and "O" if needed to clarify problem.

"P" (plan) - The recommended program of treatment and what providers feel should be done for the problem.

Approximately 100 to 200 new patients receive an initial evaluation each month; there is a one-week turn-around between the health examination and the patient's study of the record. GHCC personnel indicated approximately 8% of records were returned with comments. The records not returned are considered to accurately reflect a patient's problem list, and GHCC personnel proceed on that basis in delivering further care.

GHCC personnel indicated an important goal of the audit is to affect utilization by involving patients in their own care. GHCC feels it can be inferred from self-audited records that patients know more about and agree with their problem lists, thereby reducing the propensity to seek unnecessary care.

Clerical Audit

The clerical audit judges the use of the POMR by GHCC personnel by means of two sources: (a) the initial health evaluations, and (b) a random sample of

charts. The auditor checks for patient and provider identification, and for the following items:

1. Data base collection (both history and physical)
2. Physician findings
3. Commission rates
4. Omission rates
5. Initial evaluation of the patient
6. Plan for follow-up

The audit sheet stays in the medical record along with the generated deficiency list and the record is forwarded to the provider for corrections. A deficiency usually focuses on one of five areas:

1. Problem must be formulated
2. Patient must be called for re-visit
3. Some data must be corrected
4. Data is recognized (not in format), no further action necessary
5. Data is incorporated in problem list, no further collection necessary

During the clerical audits of the initial health evaluation, the extensive patient questionnaire (PROMIS II) is reviewed to determine whether the initial examination produced reliable problem identification, plans and follow-up plans. This requires the auditor to spend significant amounts of time with each chart to determine the efficacy of SOAP, as well as to verify the objective medical information.

GHCC personnel indicated the omission rate was 4%. The cost of the audit was placed at \$.50 per chart. The number of clerical audits coincides with the number of initial health evaluations, but may include some periodic health evaluations.

Procedural Audit

This audit was conducted along with the initial implementation of the POMR. During the first two years of POMR use, GHCC personnel stated that a strict monitoring system was instituted to insure use of the problem-oriented technique. The monitoring audit asked 14 yes or no questions about the content of the medical record. The auditor was required to note the patient's name, physician's name, auditor's name, date of audit and number of problems listed in the record. The last part of the audit was a "comments" section designed to outline corrective action.

GHCC personnel said this audit was not being conducted "much anymore," but is still performed randomly.

Quality Assurance Audit (Physician)

The physician audit procedure requires a team of two GHCC physicians to review two charts per week. The teams stay together for a three-month period,

and examine records for data justifying the problem statements, the treatment plans outlined, and whether the POMR goal statement is based on data in the record. This goal statement is the basis for follow-up audits which can be conducted at some other point in a patient's history at GHCC.

A major focus of physician audits is to examine prescribed medications to insure they are necessary, based on the record.

Records are chosen for audit at random. Physicians perform implicit peer review of care, guided by a format which requires:

1. Patient's name
2. Name of provider being reviewed, and names of providers conducting review
3. Date of audit
4. Audit of the data use, problem foundation, plans and follow-up for each record
5. Suggestions and reasons for action in each area identified in No. 4
6. Source of information within chart which audit decision was based on

Audit results were reported to be discussed in weekly staff meetings. Study staff reviewed a small sample of medical staff meeting minutes, but they contained no discussions of audit results.

Quality Assurance Audit (Problem Identification)

The problem identification audit is based on interaction among GHCC providers, who choose certain diagnoses for review. Four conditions have been chosen and updated: (a) hypertension, (b) diabetes, (c) anemia, and (d) hyperlipidemia. Approximately 200 cases of each of these four conditions have been received. Clerical personnel (the auditor) conduct the reviews, based on explicit standards developed by the provider staff.

This audit area was kept as flexible as possible. Outside consultants have been hired to conduct problem identification audit, but not as a normal practice. GHCC prefers to identify problems within the practice, and to collect data that allow judgment regarding quality of care. Action is taken after audit results have been discussed at weekly provider staff meetings.

Study staff collected no evidence regarding use of audit results within GHCC.

Follow-Up Audits

Follow-up audits are conducted on all patients who have visited GHCC three or more times in one year. The audit is geared to focus on documented goal statements within the records, and to judge whether the provider-patient

encounters are accomplishing that goal. For each succeeding visit, the auditor looks for more specific reasons.

ADDITIONAL COMMENTS

Much of the activity at GHCC is oriented to clerical audit of the initial health evaluation. The total program is characterized by flexibility of various audits which focus on a variety of subjects.

The most unusual characteristic of GHCC is the input of the consumers with regard to the total provision of care. Presently, results are being used only as they apply to the patients being seen at GHCC. It is the future goal of GHCC to provide a mechanism for applying results to patients taken care of outside this practice.

Study staff were given four sets of minutes: two dealt with audit activities; the other two dealt with general health system issues. Because of the fragmentation in the minutes, no information was used from this source to substantiate operational activities.

SECTION III

DELIVERY SYSTEM PROGRAM

SERVICES

A full range of ambulatory care is provided to the GHCC population, including an extensive patient education program. Many letters and pamphlets are mailed to them relating to sore throat, contraceptives, medicines, urinary tract infections, viral infections, mononucleosis, beta hemolytic streptococcus, chronic prostatitis, poisoning and dental care.

In addition to regular outpatient department hours, GHCC is open at nights and on weekends; staff members rotate shifts.

PATIENT POPULATION

In 1975, GHCC treated 8,000 patients who made 14,600 office visits between January 1 and December 31. The population is 99% white, and lives mainly in Burlington, Vermont, although some patients come from as far as New Hampshire. Some patients are from the private practices of the staff physicians. The population is sophisticated, with a high educational and income level. The no-show rate is very low and patient audits usually show a reasonable response rate.

STAFF

The election of new employees or members of GHCC staff to the status of full members is dependent on the levels of thoroughness, reliability, synthesizing ability and efficiency they display.

The distribution of FTE staff by profession at GHCC is as follows:

<u>PROFESSION</u>	<u>FTE</u>
Physicians	4
Nurse Practitioners	1-2/5
Administrative Personnel	2
Paramedics	5
Transcribers	2-1/2 (1/2 university related)
Lab Technician	1
Clerk Auditor	1
Medical Records Personnel	2
Secretaries	3
Switchboard Operator	1

Staffing costs amount to approximately \$246,000. Of this, the medical staff accounts for \$97,000 (MD - 81,000; RN - 21,000); and the Administrative Staff - \$144,000.

MEDICAL RECORDS SYSTEM

The medical record is the POMR; the POMR format provides data elements for a controllable, uniform data base collected when a patient first comes to GHCC and receives a physician examination. A periodic evaluation (normal routine check-up) redefines the data base after the initial complete evaluation. If a patient comes in for required visits, a plan is put into the POMR which defines any additional data base needed for periodic evaluation. The frequency of periodic evaluations and changes in the data base are defined by the practice group. To indicate the time is appropriate, the paramedic will write "Health Maintenance Evaluation" in the record.

The objectives of the Health Maintenance Evaluation are as follows:

1. To screen on a regular basis for problems that are important
2. To update the patient's medical record
3. To provide health education for the reinforcement of good health habits and to change poor health habits

Rules have been established for data reduction (what to do in the system if there is an error) in the POMR process. They cover topics such as what to do with letters for other physicians and how to record specific information on the data sheet.

Problem Lists

Physicians are responsible for insuring that the patient has an updated list of all medical, behavioral and social problems. Each active problem must have a clearly detailed plan for evaluation, treatment and patient education. A complete problem list provides an explicit data base to be used as a standard for evaluation of problem statements.

When there is no problem list for the patient, the data base is incomplete. A complete POMR data base requires a problem list for any patient regularly receiving care.

Each active problem will have a written plan as follows:

1. Use the rule-out process which links acquired data to a specific problem which is being ruled out.
2. Include parameters which are required for management.
3. State treatment clearly enough for patient or any physician to understand. Expected goal should be stated.
4. In the patient education section list information patient must have to understand the problem and treatment. The patient's area of responsibility must be defined.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

GHCC agreed to participate in the study on October 15, 1975, via correspondence, after telephone discussions with one member of the GHCC physician staff. Initial documentation was received on February 2, 1976.

The documentation received and compiled prior to the site visit on March 4, 1976, is as follows:

1. The Given Health Care Center Training Manual, approximately 250 pages. This manual describes the entire practice of care at GHCC. It is used to educate new physicians and other providers with regard to the POMR, audit forms, chronic disease protocols, patient education, chart organization and rules and standards for practice. This document is also used as a referral source by physicians and other providers.
2. Minutes from a Special GHCC Business Meeting (December 13, 1975) summarizing a discussion of the periodic examination of the data base.
3. Minutes from the Staff and Personnel Meeting (September 23, 1975).
4. Minutes of the Second Meeting Regarding Audit (July 2, 1975)
5. Summary Notes of the Audit Meeting (June 9, 1975)
6. Cover letter for record that is sent to patient

The documentation did not thoroughly describe the type of Quality Assurance audits conducted at GHCC; in particular more information on the POMR is needed. The documentation is limited in that only one set of audit minutes was sent, making accurate description of the specific program components difficult.

A large amount of information was collected during the site visits. The interviews were not audio recorded. Questions were asked of the following GHCC personnel:

1. Staff Physician
2. President of University Associates in Comprehensive Health Care
3. Administrative Assistant (Office Supervisor)
4. Paramedic
5. Clerical Auditor

Topics discussed during the interviews included:

1. Development of the Audit Program
2. Goals and objectives of the Audit Program
3. Philosophy and responsibility of staff
4. Importance of consumer involvement
5. Problem Oriented Medical Record Data Base
6. Overview of the four audit processes
7. Importance of audit procedures relative to total delivery system
8. Funding of Audit Program
9. Cost of auditing activities
10. Decision making in Audit Program

11. Unique characteristics of the system
12. General audit and quality assurance issues
13. Future directions of GHCC Audit Program

The Staff Physician presented an overview of the Audit Program as well as the practice; the President of University Associates provided staff with information regarding the critical philosophy of the physicians as well as the types of POMR procedures; the Paramedic presented specific information on the audit of the data base; the Administrative Assistant provided information on staff, resources, utilization, and financial issues, as well as an in-house assessment of the program in 1975; and the Clerical Auditor provided first-hand knowledge of and experience with audits.

NORTH CENTRAL HEALTH PROTECTION PLAN

Wausau, Wisconsin

SECTION I

I N T R O D U C T I O N

The Health Care System Division (HCSD) of Employers Mutual Liability Insurance Company of Wausau, Wisconsin, manages five Individual Practice Association (IPA) Health Maintenance Organizations (HMO) in Wisconsin. These organizations are termed health protection plans (HPP) from HCSD's perspective, and contractual arrangements are twofold:

1. HCSD provides complete managerial and administrative services to the IPAs.
2. HCSD has individual contractual agreements with all individual physicians participating in the health protection plans.

The North Central Health Protection Plans' (NCHPP) quality assurance activities were selected for review, assessment and inclusion in this study. The NCHPP is located in Wausau, Wisconsin, and includes approximately 96 physicians. Each participating physician signs an agreement with HCSD, which includes four components:

1. The physician will agree to and abide by the decisions of the Peer Review and Physicians Operating Committees.
2. The physician will provide a fee schedule and guarantee those fees for a 12-month period (to be renegotiated yearly).
3. The physician will accept the risk sharing provisions of the program (recently raised to 100% sharing of the Physicians Fund).
4. The physician will agree to and abide by the provisions of the hospital concurrent Review Process called the Hospital Certification Program.

Within Employers of Wausau, the HCSD receives management direction from the Health Care Committee (HCC), consisting of five senior vice presidents of the company. The division is directly managed by an assistant vice president and division manager. A health protection plan administrator works directly with the respective IPA, his functions being supervised by the HCSD manager.

Each IPA is operated by a Physicians Operating Committee, which represents the physician members of the local medical society (for NCHPP, the Marathon County Medical Society). The HCSD deals directly with the Operating Committee through the HPP administrator, as well as with the Peer Review Committee, a subcommittee of the Operating Committee. Employers of Wausau's HCSD participation in IPA began in 1972, in an effort to positively affect the cost of physician and hospital services through a shared-risk provision, and an aggressive quality and utilization monitoring scheme. The main services performed by HCSD include provider relations, underwriting and pricing, marketing, actuarial, policyholder and enrollee relationships, and data support.

The IPA includes solo practitioners, small group practices (two to ten physicians) and a free-standing medical center. The study examines NCHPP's Peer Review activities as a committee encompassing review of all physicians within the plan, and does not focus on one delivery setting or review situation.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

Because of the similarity between documented (planned) activities and operational activities of NCHPP, they will be discussed in one section rather than separately. When information has been taken from documentation or the site interview, the source will be noted. This section will describe NCHPP's quality assurance program as follows:

1. General outline of quality assurance system
2. Role of the automated data collection system in quality assurance
3. Specific activity of Peer Review Committee and its members
4. HCSD role in quality assurance system
5. Results produced by quality assurance system (peer review activities)
6. Results of study staff's review of Peer Review Committee minutes.

The focus of ambulatory quality assurance activities at NCHPP is a peer review process conducted by a nine-member Peer Review Committee (PRC), made up of practicing NCHPP physicians. Committee activities are supported by HCSD staff and the NCHPP data processing capabilities.

The interaction between the HCSD (Health Care Systems Division of Employers Insurance), Peer Review Committee (PRC) and Physicians Operating Committee (POC) is the cornerstone for the review and monitoring system. NCHPP personnel indicated that because all NCHPP physicians are sharing the risk, they are seriously committed to an operational monitoring system. Interview data showed that NCHPP funding comes from a finite fiscal base, so utilization must be carefully monitored.

Individual PRC members are responsible for reviewing a certain number of family or individual medical profiles (Account Profiles). Reviews are conducted monthly and written reports are submitted with recommendations to the PRC. The committee then discusses individual review cases, and takes action relative to the NCHPP physician. If a reviewed physician responds to committee action, the committee will then review and discuss his response. The review orientation requires committee physicians to relate the problem or diagnosis to specific procedures noted on a profile, in an attempt to delineate questionable utilization of resources and care.

PROGRAM ELEMENTS

Encounter claim forms are the data source used for all informational requirements for NCHPP. Each specialty or individual physician joining NCHPP develops an encounter form, in consultation with HCSD personnel. Forms are not only created for each specialty, but also for individual physicians within each specialty. Encounter claim forms are either sent to HCSD for automated data processing or entered directly via terminals at the doctor's office in an on-line real-time environment. The encounter forms are precoded and include the

diagnosis, procedures and fee schedule for the provider. The forms are very explicit and itemize in extensive detail many procedures for prospective billing.

Two types of coding used in the system are CPT (for treatment and procedures) and H-CDA (diagnosis). Generally, physicians use the 1969 California Relative Value Scale to calculate fee schedules. Accuracy and validity checks of the coding system are made to insure a low error rate in documents. They are as follows:

1. Encounter forms are compared with individual profiles to check accuracy of diagnosis, procedures and fees
2. The Administrator of NCHPP closely supervises input data clerks (telecommunicators) who, with the aid of the system:
 - a. Verify eligibility
 - b. Through prepricing, ensure adherence to guaranteed fee schedules
3. A physician specialty comparison is periodically produced to identify "high utilizers." Those physicians are reviewed by the committee.
4. Physicians code and check forms during the patient encounter to maximize accuracy and validity. This system of checking has been used for two and a half years.

Encounter claim data are the basis of 45 reports produced for NCHPP by Employers Insurance of Wausau. The Account Profile report used for all ambulatory reviews by committee physicians details all procedures, problems, diagnoses and charges submitted by NCHPP physicians for each member of a family over a period of time (approximately one to two years). This allows physicians to review a total episode of care for an entire family.

The reviewing physician reviews the printout of the Account Profile, which consists of several data elements:

1. Account number
2. Data printout
3. Family member names, sex and number
4. Practice code
5. Date of service
6. Procedure code
7. Brief description of procedure
8. Fee
9. Diagnostic codes and descriptions

The profile reports family encounters by individual member, in chronological sequence. Since these profiles are randomly selected for review, a reviewing physician may review a profile with a few encounters or with a number of encounters, thereby making the review workload unpredictable. The NCHPP Administrator directs a clerk to acquire a copy of the "Numeric Report," which lists all social security numbers of NCHPP members. Ten pages are chosen at random, then a column from each page. Ten profiles are selected from the report, which provides the profiles to be reviewed that month.

The family names and individual physicians' names are removed to preserve confidentiality and allow anonymous review. The Account Profiles are referred for review to Committee members by the Plan Administrator. Reviews are conducted individually by each Peer Review Committee physician. The two committee physicians interviewed said profiles are examined to detect discrepancies in total episodes of care and errors in medical logic. The physician will attempt to correlate particular diagnoses or problems with noted procedures and treatment regimens. This review process requires each reviewing physician to make an implicit value judgment regarding another physician's practice in specific cases.

Once a committee physician has reviewed a profile and made some judgments, he is required to submit a written report to the committee, through the NCHPP Administrator. The written report requires the physician to outline the case, the problems or issues discovered and his recommendations. Once the committee meets, each case is discussed and a full committee decision is reached regarding specific actions.

The committee has had some problems in getting all review physicians to write reports on their review cases. The minutes indicated some cases are verbally presented to the committee. However, three physicians who are more involved in committee activities than others (serving on both the POC and the PRC) provide sufficient enthusiasm for the committee to function as an active monitoring body.

Since a main role of HCSD, according to informants, is to market Health Protection Plans to different communities, HCSD was extremely careful when first establishing the PRC to obtain physician representatives with solid reputations who could establish committee credibility during the organization's formative stages.

As noted in the documentation, the PRC is comprised of nine members; three hold joint membership on the POC, and six are elected directly to the PRC. Candidates are nominated and elected by members of the County Medical Society. Both committees represent physicians who belong to the Marathon Medical Society, and who are also NCHPP members. Either committee may refer questions or problems to the other committee for comment and review, although the POC has final responsibility on all matters.

As noted in the interview, the PRC has been fairly stable since only one-third of the committee turns over annually. Committee members meet on the first Tuesday of every month. Information pertaining to review is received by members one week before the meeting, except for account profiles which are sent at least two weeks before the meeting.

The documented guidelines for the Peer Review Committee of NCHPP are as follows:

1. The Committee will be known as the NCHPP Peer Review Committee.
2. The Committee shall have as its goal the improvement of medical care in the community, which includes inpatient care, hospital outpatient care, clinic outpatient care, and sound medical office practice.

3. The Committee shall have a membership of nine persons whose terms shall be staggered in the following manner: three members with three-year terms, three members with two-year terms, and three members with one-year terms. The Committee chairman shall be a physician, an experienced member of the PRC, and a nonvoting member of the POC (unless a member of the Operating Committee by joint election).
4. Three members of the PRC--one with a three-year term, one with a two-year term, and one with a one-year term--shall serve concurrently on the POC.
5. The Committee shall consist of physicians from the various modes of practice, including family medicine, internal medicine, ophthalmology, other various specialties, and psychiatry.
6. Employers Insurance shall be represented on the Committee for interpreting data, and a nurse coordinator at the hospital shall be available for consultation on the hospital certification program.
7. The voting members of the Committee shall consist of physicians only; other members will be advisory.
8. The primary responsibility of the Committee shall be to establish guidelines for execution of quality medical care in the office as well as the hospital.
9. The Committee shall have a permanent recording secretary.
10. The Committee shall establish a standard coded system to be used by all participating members for reporting procedures and diseases to Employers Insurance for reimbursement and for the purpose of quality review.
11. The PRC should operate separately from the POC, yet in conjunction with the POC's activities. Meetings shall be held on a monthly basis, and the minutes be presented to the entire North Central Health Protection Plan Operating Committee.
12. It shall be the intent of the PRC to review at periodic intervals every physician's hospital office practice. If any problems develop as a result of this review, they shall be presented to the POC.
13. The PRC is expected to make an effort to inform and educate participating physicians why review is taking place.
14. Employers Insurance of Wausau will continue to aid physicians on the Committee with computer support, which will enhance their ability to conduct medical audits and peer review of NCHPP. It is important that physicians understand the information provided by NCHPP.
15. The PRC shall maintain permanent records, including the monthly statistical reports furnished by Employers Insurance.

After reviewing PRC minutes, the committee's activities emphasize communication with physicians who have been reviewed after a problem has been discovered. The letters usually ask the physician for more information regarding a specific case or forward comments of the review physician. The committee has functioned at a very high activity level, both in reviewing profiles and communicating with NCHPP physicians.

Committee decision-making is described as a consensus process in which a majority of committee members agree on the gravity of a problem and the type of action to be taken. The PRC, it was noted, benefited from the services of a managerial consultant who was employed by the Wausau Medical Center to evaluate committee meetings and individual interactions in terms of accomplishing their objectives. The consultant attended several meetings and presented recommendations to the Center. This point emphasized both the NCHPP physicians' and HCSD's attitudes toward implementing an effective review system.

The PRC also commits significant amounts of time and resources (based on information from interviews and minutes) to review of inpatient services. The NCHPP Hospital Certification Program, as noted in the documentation, includes hospital utilization, extension requests and reviews, procedures for handling noncertified admissions or extensions and certification information. NCHPP benefits disallow diagnostic admissions, and the nurse coordinator makes sure all questionable admissions are approved by a committee member. In accordance with the previously determined guidelines, a physician of one specialty reviews a fellow specialist. PRC physicians usually review extensions of length of stay and questions regarding admissions. This has proved to be an educational process, but now has controls for noncertified admissions or extensions. If a physician makes a noncertified extension or admission, written notification is made and all charges paid from the General Fund. The second time, half of the charges are paid from the Physicians Fund and half from the General Fund; the third time, all charges are deducted from the physician's claim payment.

As well as assisting the hospital in discharge planning and having responsibility for the administration of certification procedures, the Nurse Coordinator maintains monthly statistics related to the Plan (with regard to admissions, recertifications and extensions). These statistics are monitored by the physicians and updated monthly.

The POC reviews reports from the PRC and approves their actions, thus the three joint members provide some consistency in problem solving. The POC represents the physicians of Marathon County and functions in a policy role, which includes several operational activities:

1. Acts in an administrative capacity by reviewing operations and by recommending or concluding changes
2. Is the policy-making committee for the administration of NCHPP
3. Is responsible for effective fee review

The Peer Review Committee

1. Acts in a capacity of controlling quality and quantity of medicine and will take whatever appropriate action is needed
2. Is responsible for review and evaluation of statistical data pertaining to physician activity under the plan

3. Is responsible for review and approval or denial of hospital certification or extensions necessitated by the hospital certification program (these cases are referred for review by the nurse coordinator)
4. Each committee member is responsible for an individual review, but when he or she is unable to resolve a particular question, it must be referred to the entire committee. Committee members' terms are staggered for one, two, and three years to maintain continuity and consistency of review.

Data Processing

The NCHPP information system (managed by HCSD) produces several reports. The Physician Summary Report, produced on a quarterly basis, provides all NCHPP physicians a report on their charges and services, in addition to charge and service data for all other physicians within the same specialty for purposes of review and comparison. During interviews, HCSD personnel indicated this may function as a peer pressure mechanism to keep NCHPP physicians alert to colleagues' utilization patterns. Three main characteristics of this report should be noted:

1. The reports are very detailed and demonstrate all procedures billed to the Plan by a particular physician. Charges are divided into four areas; surgery, radiology, pathology, and medicine.
2. Summary reports for various plans also document outpatient charges in the following areas: monthly charges, number of patients, services per patient, average charges, emergency room charges, x-ray tests, lab tests and physical therapy charges.
3. Summary reports also display out-of-area referrals to non-participating physicians by physicians in the Plan. This report also tabulates physicians' referrals for month and year to date, the person to whom the referral was made and the cost of the referral by service.

Because of data processing capabilities, PRC and POC physicians have access to more than 45 different programmed reports. The most important ones are as follows:

1. Disability Report - all diagnoses submitted to the Plan and all treatments for that diagnosis--by plan, by specialty, or by physician
2. Hospital Inpatient and Outpatient Report - all charges rendered to the Plan for inpatients and outpatients
3. Out-of-Area Referral Report
4. Charge and Service Recap Report
5. Diagnosis Profile Report
6. Case Review

Other reports are as follows:

1. Pregummed labels for patient medical record
2. Cross-reference cards for subscribers and dependents
3. *Activity edit reports
 - Pap smear charges
 - Charges exceeding \$500
 - Physical exam exception report
4. Hospital payment voucher
5. *Monthly charge and service analysis by physician
6. Monthly payment voucher
7. *Monthly report by physician and by procedure code for the IPA
8. Out-of-area student emergencies, nonstudent emergencies and existing disabilities report
9. Hospital inpatient physiotherapy report
10. Hospital confinement report
11. Patient within diagnosis report
12. Active and terminated account listings
13. Current month additions--terminations report
14. Dependent eligibility report
15. Procedure code listings
 - Expanded list
 - Condensed list
16. Physician cross-reference listing
17. Out of balance accounts report
18. Lag time report
19. Delinquent posting report
20. Statement of charges report
21. Transaction history report
22. Experience reports
 - By account
 - By patient
 - Termination
23. Pure premium coverage report
24. Year end subscriber account summary
25. Resurvey questionnaire
26. Daily trial balance report
27. Daily clear totals report
28. Transaction adjustment report
29. Practice master report
30. Numeric account report
31. Alpha account report
32. Reserve report
33. Charge file total report
34. Expenditure report
35. Physician payment voucher
36. Out-of-area emergency report
37. Referral report
38. Treatment code report

* Used more frequently

39. Patient count report
40. Plan status report
41. Emergency room profile report
42. Plan analysis report
43. Age and sex table report
44. Dollars distribution report

Peer Review Committee Minutes

The on-site investigators were allowed to review PRC minutes to substantiate committee activities. An abstract of the minutes is presented below and they substantiate both the peer review activities outlined in documents and activities reported from interviews.

Seven sets of Peer Review Committee meeting minutes were compiled and analyzed (September 3, 1975 to March 2, 1976). Committee meetings convened in the evening around 7:45 p.m. and usually lasted about three hours. The attendance rate was fair, running around 50% each meeting except for the September 3, 1975, meeting when nine members were present and the February 3, 1976, meeting when 12 were present. The activities usually consisted of review of the minutes of the previous meeting, discussion of account profiles, assigning of new reviews, letters being sent based on previous reviews and discussion of letters received from physicians based on previous reviews. In greater detail, the specific activities of each of the seven meetings follow:

1. September 3, 1975 7:45 p.m. to 12:15 a.m. 9 present; 3 absent

Activities: Discussion of eight submitted review reports
 Minutes note ten reviews performed
 Eleven letters sent to providers based on reviews

2. October 7, 1975 7:45 p.m. to 10:25 p.m. 7 present; 6 absent

Activities: Minutes reviewed
 Review of letters from providers responding to review
 Peer review activities discussed with regard to account
 profile responsibility

3. November 4, 1975 7:50 p.m. to 10:20 p.m. 6 present; 6 absent

Activities: Report on Hospital Certification by one Peer Review
 Committee member reviewed
 Discussion of administrative input from HCSD into peer
 review activities
 Letter from one physician reviewed by Committee discussed
 Three account profiles discussed
 Ten new reviews assigned
 Four letters sent to providers based on reviews

4. December 1, 1975 7:50 p.m. to 10:15 p.m. 6 present; 6 absent
- Activities: Motions to take specific action on three cases
Six account profiles reviewed
Discussion of grievances of two physicians
Hospital Certification cases discussed
Letters sent to seven physicians based on committee review
Discussion of letters from four physicians based on previous reviews
5. January 6, 1976 7:40 p.m. to 10:50 p.m. 7 present; 5 absent
- Activities: Hospital Certification cases reviewed
Mammography screening program reviewed
Two out of four letters received from physicians responding to reviews discussed
6. February 3, 1976 7:40 p.m. to 11:00 p.m. 12 present; 1 absent
- Activities: Letters from Nurse Coordinator discussed
Evaluations from two review physicians discussed
Six account profile reviews discussed
Letters sent to seven providers asking for information on procedures and charges
7. March 2, 1976 7:45 p.m. to 8:55 p.m. 6 present; 6 absent
- Activities: Discussion of review procedure
Reviews assigned to Committee physicians present at meeting to conduct the reviews for those not present
Discussion of letters sent to physicians based on previous review
Hospital Certification figures reviewed
Written reports from six physicians noted
Ten account profiles discussed
Eight letters sent to providers requiring explanation and identification of charges

ADDITIONAL COMMENTS

No medical criteria were developed for peer review activities. During interviews, NCHPP personnel indicated the PRC attempted to develop criteria, but no consensus regarding such criteria for different specialties and individual physicians could be reached. They feel the present review process is funneled through enough checks and balances that a review decision, once reached, is a judicious medical opinion for a specific case of care.

According to documentation, retroactive denial was officially endorsed by the participating NCHPP physicians at the Marathon County Medical Society meeting of September, 1975. The effective date for this procedure was July 1, 1975, with the committee having the power to deny charges back to July 1, 1974. A

retroactive denial is a denial of reimbursement for services provided or ordered by a physician after money for this service has been provided. These denials usually are the result of a random review of Account Profiles by the Peer Review Committee. The procedure for retroactive denial is as follows:

- a. Physician notified via letter of denial, has 30 days to justify his or her procedure
- b. If no response after 30 days, second letter sent requesting response
- c. If no response after 14 days or physician unable to justify procedure, denial remains; if committee approves justification, denial cancelled. All appeals are sent to the POC. Study staff were unable to determine the effect of this program at the time of the site visit.

NCHPP's program had several unique characteristics:

1. Physicians serving on the committees do so without charge, except for a small reimbursement provided to a physician who reviews a specific case for certification or presents it to the Committee.
2. Physicians' behavior may be affected by the knowledge that their procedures and diagnoses can be closely monitored at any given time by the Committee.
3. Each contract is with an individual physician rather than a group. Each physician makes his or her own decision to participate and accept the responsibilities according to the agreement.
4. The fee-for-service operation rewards a physician for individual ability and initiative.
5. The Plan is operated solely on private resources.
6. The Plan controls its patient and physician population. There is no open enrollment.
7. Reviewed profiles are of entire families for whom services have been provided for a period of 12 to 24 months.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The Health Care System Division within Employers Mutual Liability Insurance Company of Wausau, Wisconsin, is a functioning HMO with contractual relationships with five Individual Practice Associations (IPA's). According to documentation, this plan does the following:

1. Preserves the fee-for-service approach.
2. Accommodates all types of medical practices, from solo practices to clinic practice.
3. Affords those enrolled in the Plan free choice of participating physicians.
4. Pays in full nearly all medical expenses for both inpatient and outpatient care.
5. Pays for preventive as well as curative services.

According to the interview, HCSD has developmental, conceptual, and operational responsibilities to the Health Protection Plans. Initial involvement in a community begins with the development of both medical provider support and industry support. Representatives from HCSD speak to key physicians, the local medical society, and community leaders about the important conceptual aspects such as risk sharing, concurrent hospital review, ambulatory peer review, guaranteed fees and charges, and computerized administration.

Each HPP (IPA) is separately developed. Marketing activities are based on the number of physicians and employers within a specific geographic region--such as a county medical society area. HCSD tries to maintain a high level of interaction between physicians, institutional providers and industry.

SERVICES

The Plan pays in full practically all medical expenses of both inpatient and outpatient care given at a particular physician's office or clinic and at a particular hospital. Acute, preventive, diagnostic and ambulatory care services are covered by the Plan. The maximum benefit per person is 250,000 dollars.

With regard to preventive care, benefits include payment in full for office visits, immunizations, diagnostic testing, medical eye exams, routine physical exams (within a specified time period) and pap smears, which are available annually. Twenty-four hour emergency room care is also covered. Mental health services occurring in the hospital are paid in full while those occurring outside the hospital are covered to \$1,000 per year.

It is noted in the documentation that the Plan was initially available to eligible full-time employees of existing groups of 25 or more employees and their eligible dependents. These dependents can be a spouse and unmarried

dependent children up to 19 years of age (if students, eligible until 25 years of age). Each enrolled employee has the free choice of selecting a participating physician.

STAFF

Approximately 96 physicians are participating in the Plan. The role of each physician is:

1. To assure adequate manpower
2. To provide utilization review and peer review
3. To provide review of fee schedules submitted by particular physicians in the development of relative uniformity by specialty
4. To abide by decision of the physician committee, which represents all physicians in making necessary decisions and providing guidance for the success of the Plan

The entire HCSD is managed by a Health Care Committee within Employers of Wausau. Five senior vice presidents evaluate the total program. They report directly to the president of the company. An assistant vice president is in charge of HCSD. In addition to the assistant vice president, the staff include:

- Manager, health care systems operations
- Three HPP administrators
- One research underwriter
- One supervisor responsible for the activities of the data clerks and claim clerks
- One financial reporter
- One Milwaukee administrative assistant
- Four payment processors
- Five telecommunicators
- One clerk typist
- Two administrative reports processors

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

NCHPP (HCSD) was considered for inclusion in the study on recommendation of a Project Advisory Board member. The assistant vice president of HCSD was contacted by study staff on February 10, 1976. He was introduced to the project and expressed interest in participating. Correspondence was exchanged and HCSD agreed to participate in the study on March 9, 1976, during a telephone discussion with the administrator of NCHPP.

HCSD forwarded initial information (March 29, 1976) to study staff, which included the following documents:

1. Three-page internal correspondence (March 29, 1976)
2. Health Protection Plans Organization (3-page narrative statement)
3. Health Protection Plans Organization Chart (copyright, 1976)
4. Definition: Peer Review Committee of the NCHPP
5. Relationship and Responsibilities of the Operating Committee and the Peer Review Committee
6. Guidelines for the Peer Review Committee of the NCHPP
7. NCHPP - Peer Review Summary
8. NCHPP: Major features of the Plan (January 1, 1974)
9. NCHPP: Hospital Certification Program (January 1, 1974)
10. Peer Review Report (March 1, 1976)
11. NCHPP Patient Profile (February 13, 1976)
12. NCHPP Statistical Summary Sheet (January to April, 1976, 39 pages)
13. NCHPP encounter forms
14. NCHPP coding sheet (computer input document)
15. NCHPP Physicians Participation Agreement (November, 1972)
16. List of NCHPP Computer Reports

This documentation outlined the organization, program elements and objectives of NCHPP in relation to HCSD within Employers of Wausau.

The dates of the site visit were April 27 and 28, 1976. A significant amount of information was collected during the site visit, but the interviews were not taped. Questions were addressed to the following personnel:

1. Assistant Vice President of HCSD
2. Manager of HCSD Operations
3. Chairman of Physicians' Peer Review and member of Operating Committee
4. Member of Peer Review Committee
5. Administrator of NCHPP
6. Administrator of Eau Claire HPP
7. Research Underwriter
8. Administrator of Milwaukee HPP
9. Assistant - General Counsel

The topics covered during the interview were:

1. Administrative structure of HCSD
2. Historical development of HCSD
3. Initial development of IPAs by Employers Insurance of Wausau
4. Philosophy and approach of HCSD with regard to the delivery of medical services
5. Marketing activities of HCSD and IPAs
6. Unique characteristics of NCHPP
7. Goals of the review process of NCHPP
8. Peer Review Committee activities and functions
9. Interrelationship between Peer Review Committee and Physician Operating Committee
10. Decision-making by Peer Review Committee
11. Encounter form used at NCHPP
12. Accuracy and validity with regard to coding and data accuracy
13. Fee schedules
14. Account profile review
15. Physician profile review

In addition to the interview, the Peer Review Physicians performed sample account profile reviews for the study staff.

MATTHEW THORNTON HEALTH PLAN

Nashua, New Hampshire

SECTION I

I N T R O D U C T I O N

Matthew Thornton Health Plan (MTHP) is a prepaid nonprofit group practice operating with Blue Cross support in Nashua, New Hampshire. The clinic has been in operation since November, 1971, and the quality assurance program (QAP) has been operational for approximately 18 months.

The clinic provides eight major services to approximately 29,000 persons and is staffed by 32.5 FTE (full time equivalent) medical employees and 33.5 FTE administrative employees.

MTHP has two distinct organizational structures: (a) administrative staff, and (b) medical staff, composed of physicians, physician assistants and nurse practitioners. A lay board of directors has overall responsibility for the operation of plans, with the medical director reporting directly to the board. Under the medical director is the executive director, who administers finance, marketing, ancillary services, personnel and plan management.

MTHP does not have a highly formal quality assurance program, but does conduct clerical and peer review of medical records, as well as holding informal peer review meetings. MTHP was included in the study because of active development of quality assurance elements and because of its success in using the problem oriented medical record (POMR).

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

Before its formal inclusion in the study, a Matthew Thornton Health Plan physician suggested that MTHP should be included because it was in the process of developing a formal quality assurance program based on a fairly large experience of informal activities.

MTHP personnel specified several factors responsible for the development of a quality assurance program (QAP):

1. The key factor in developing any assessment program is the documentation of specific physician-patient encounters; the main emphasis over the last two years has been to assure the proper use of the problem oriented medical record (POMR).
2. Since MTHP is the first prepaid health plan in the area and the largest group practice, the group felt it was important to formalize audit procedures as a marketing point with the community.
3. Both the medical director and the quality assurance director were committed to formalizing procedures and convincing the group of physicians and the Board of Trustees of their importance.
4. The importance of continuing education has made quality assurance an essential ingredient in developing education programs for the whole professional staff.
5. MTHP staff felt they should have some assessment of the quality of their medical care to make needed adjustments in techniques and procedures that improve care.

MTHP quality assurance program does not include a systematic monitoring of components in the medical system. MTHP personnel said a "constant monitoring program" for particular disease conditions was not feasible or necessary at this particular time. Formal quality assurance activities have consisted of surgical and hospitalization reviews. MTHP personnel said that since MTHP has been in operation for five years, resources necessary for formal reviews have focused on the inpatient sector.

No documents are available describing the development and implementation of the QAP. HCMS did receive a lengthy correspondence from an MTHP internist outlining key features of the peer review program, and indicating the developmental nature of the program. Program information was also collected during the on-site investigation.

The administrative staff of MTHP has little input into direction of peer review activities. By reporting to the board of directors the medical director has developed a good source of support and has convinced the Board it is worthwhile and cost effective to develop formal quality assurance programs. The Board of Trustees passed a formal resolution in support of the embryonic

peer review activities. Specific decision making for quality assurance emanates from the medical director and depends on his relationship with the entire medical staff. Goals and objectives were not set down formally, but two general principles were agreed on during group discussions between physicians and physician assistants, who play a major role in delivering services at MTHP:

1. The program should allow for adjustments in techniques and procedures which will improve care.
2. Quality of care assessment should be an essential and integral part of MTHP efforts for continuing education of the entire professional staff.

Specific systematic quality assurance methods have not yet been selected by MTHP; however, various techniques and procedures have been adapted to fit MTHP's needs.

OPERATIONAL ACTIVITIES

Quality review at MTHP has two major aspects, the clerical POMR audit, and the peer review audit.

Clerical Audit of POMR

The importance of the MTHP audit system is the investment of resources in systematically recording and typing encounter information in the medical record. The emphasis at MTHP has been to improve the documentation of care, "since any quality assurance program will only be as good as the information in the record." All data placed in medical records are typed.

The clerical audit of the POMR is the most consistent and best developed procedure at MTHP. A data base has been established and each physician or physician's assistant is required to complete it whenever a patient has a "complete physical." This system is monitored with monthly assessments of whether all parameters were met.

Because the use of the POMR requires highly specific information, the audit procedure identifies whether specific data elements are present in the record.

POMR audits are the main focus of activity at present. They are conducted by an administrative staff person, whose responsibility includes transcription of all medical records. The results are computed for each provider. A tally sheet compiles the provider's name, the number of chart audits, the number of omissions and the accuracy (percentage of charts with no omissions). Results are sent to the medical director, who uses audit results for decision-making. The assessment procedures are as follows:

1. Patients are classified in one of four ways--males over 40, males under 40, females over 40, and females under 40.
2. For each classification, audit values (also called data elements) were developed (Figure 1).
3. Every month an audit is conducted on data bases for all physicians.
4. The charts that are pulled are the POMRs of the complete data bases that were conducted the previous month (i.e., in January all data bases completed in December are audited).
5. The audit values listed above must be included in the data base for patients in the four categories.
6. The monthly sample of charts is then audited by the administrative assistant.
7. Results of the audit are reported in terms of the frequency of omission of the audit values.
8. Results are given to the medical director.
9. It is up to the medical director to take action with the individual physicians if they were omitting specific audit values, but the medical director will have a patient return to the clinic for completion of the initial assessment.

The administrative assistant responsible for auditing said approximately 107 charts are audited monthly. Omissions are sent to the medical director who has full discretion and responsibility for taking action. Most audits are done on initial health evaluations, which in a POMR system are the foundation for the data base, and for other care episodes and encounters.

MTHP personnel indicated clerical audits are considered the first stage in developing disease- or condition-specific audits.

Peer Review Functions

Peer review is the responsibility of the entire clinical staff. When peer review meetings are held to discuss quality assurance issues, all MTHP providers, physician assistants, nurses, and key administrative personnel attend. Site investigators were allowed to attend one such meeting, and made these observations:

- a. Discussions follow a general outline, but are fairly unstructured
- b. Rate of attendance of physicians and physician assistants is high
- c. The primary physician presents topic cases (in this instance three recent deaths), bringing documentation into the meeting
- d. Most physicians attending made comments on cases
- e. No decisions were discussed in the meeting
- f. The meetings seemed to have educational value
- g. Minutes were taken at the meeting

FIGURE 1

AUDIT VALUES FOR MALES AND FEMALES

A. Distribution of Audit Values for Males by Age			B. Distribution of Audit Values for Females by Age		
A. Distribution of Audit Values for Males by Age			B. Distribution of Audit Values for Females by Age		
Audit Values	Less than 40 yr.	Greater than 40 yr.	Audit Values	Less than 40 yr.	Greater than 40 yr.
History	X	X	History	X	X
Physical Exam	X	X	Physical Exam	X	X
Tine Test	X	X	Tine Test	X	X
Urinalysis	X	X	Urinalysis	X	X
VDRL	X	X	VDRL	X	X
Tonometry		X	CBC	X	X
Pulmonary Function Test		X	Pap Smear	X	X
Rectal Exam		X	Tonometry		X
Stool Guaiac		X	Pulmonary Function Test		X
EKG		X	Rectal Exam		X
Chest X-ray		X	Stool Guaiac		X
SMA-12		X	EKG		X
Hematocrit	X		Chest X-ray		X
Glucose	X		Hematocrit	X	
Cholesterol	X		Glucose	X	

MTHP personnel stated the three areas of peer review were not implemented in a systematic manner, and would remain informal until clinical staff could devote more time to review, or until discovery of critical issues that require systematic monitoring. The three kinds of peer review are death, problem case, and general, defined as follows:

1. Death Review is conducted approximately every three months, but seems to be irregular.

All deaths in the practice are reviewed in terms of outcome and the procedure of the medical care. This is usually one-to-one, another physician doing the reviewing.

The peer review meeting attended by study staff dealt with two death reviews. The case discussions seemed to accent general education for the MTHP providers.

2. Problem Case Review is designed to reveal problems in two areas:
 - a. Patient complications in management of a particular problem or condition
 - b. Exceptions noted in the medical record and medical problems or both

Each physician is asked (via memoranda) to "select one patient" whose medical record documents a difficult or interesting treatment diagnosis. A peer review audit sheet accompanies this memo, listing 15 questions to be answered by the physician about the problem case.

MTHP attempts to conduct this review every three months for 16 to 20 cases. No minimum or maximum number of cases is required.

After the coordinating physician receives the medical staff responses, he will route the medical record to an independent physician for implicit review.

Peer review meetings are then held to discuss the cases, especially medical management problems. The coordinating physician reviews the cases before review meetings to facilitate the procedure. Two results of meetings are possible:

- 1) Education activities could be implemented
 - 2) Reports on the total management of patients could be discussed and possibly improved (because patients see a variety of MTHP physicians)
3. General Reviews are topic-oriented audits, wherein a specific disease entity is chosen, data are collected and analyzed and results are discussed in a peer review meeting. HCMS staff

received evidence of a hypertension audit conducted in September, 1975. The focus of this audit was to look at a large group of hypertensive patients to see if a few parameters were being met to assess the quality of long-term management of a chronic condition.

The audit was conducted in the following manner:

- a. More than 100 charts with the terminal number 98 were chosen; out of this group, 14 charts contained a diagnosis of hypertension.
- b. Charts from the last computer printout for hypertension were checked. Again the selection of charts was by terminal digits derived from a list of random numbers.
- c. The charts were pulled and values to be checked were:
 - 1) Was patient seen in the last six months for hypertension?
 - 2) Was the average of the last 3 systolic pressures less than 170? (The data in this category reflects, in most cases, the last and only BP reading of the record.)
 - 3) Was the average of the last 3 diastolic pressures less than 100? (In most cases only one value was available, and that value was used.)

The 10 items listed below were the audit elements on the 79 hypertension charts selected:

MTHP chart number
Date of last blood pressure recording at MTHP
Last blood pressure recorded at MTHP
Date last seen at MTHP
Primary provider for blood pressure follow-up
Last visit to MTHP specifically for blood pressure
Provider and reason last seen at MTHP
Last instructions received at visit to MTHP
Blood pressure medication(s) prescribed
Blood pressure flow sheet completed

- d. The administrative assistant (who also conducts chart audits) conducted this peer review audit on hypertension.
- e. The 79 charts were given a distribution in terms of the values that were and the values that were not met.
- f. Fifty-four charts examined satisfactorily met the criteria being checked for. Twenty-five charts were presented for peer review because of deficient criteria findings.

Investigators found no documentation regarding specific activities in these three possible outcome areas. Study staff received no report regarding the use of results. The peer review meeting, where the hypertensive charts were discussed, was not documented in minutes.

ADDITIONAL COMMENTS

The medical director noted that a small group practice encourages constant interaction among physicians and therefore requires a less formal assessment program than a large group. Formal and informal perceptions of the quality of service delivered are very close at MTHP, and formal quality assessment procedures are important, but not as important as:

1. The type of physician hired to come into the group practice
2. Physicians sharing charts and thereby monitoring what type of care is delivered by one another

There seems to be excellent commitment on the part of MTHP staff to formal quality assessment. However, due to the rapid growth of the practice, peer review is conducted during lunch meetings and on voluntary time. The amount of time the physicians now have to conduct reviews and take part in the activities is limited.

Also due to rapid growth, MTHP has been faced with pressing administrative and management problems. It has only been in the last six to twelve months that effective work on starting a QAP has begun.

A unique aspect of the MTHP quality review is the dedicated and successful use of the POMR.

MTHP is in the process of establishing a more comprehensive education program for diabetic patients. One nurse has become very active in it and is setting up a pre-and-post test to be given to patients to monitor the effectiveness of the diabetic education program.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

MTHP is a prepaid group practice offering eight general categories of services: internal medicine, pediatrics, general and pediatric surgery, obstetrics and gynecology, psychiatry, dietetics, laboratory and x-ray. Utilization rates by department are as follows:

Internal Medicine	51%
Pediatrics	29%
General & Pediatric Surgery	9%
Obstetrics & Gynecology	7%
Psychiatry	3%
Dietetics	1%

There are 12.5 FTE physicians, eight physician assistants and 12 nursing aides and technicians. The distribution of salaried physician employees at MTHP Inc. is as follows:

Internal Medicine	4	Pediatric Nurse Practitioner	1
General Surgeons	2	Medex-Physician Assistants	5
OB-GYN	2	OB-GYN Nurse Practitioner	1
Pediatricians	3	Part-time Social Worker	1
Part-time Psychiatrist	1	Part-time Dietitian	1
Medical Resident	1		

Other services include home care, acute ambulatory care at the medical center, hospital services (both physician services and hospital benefits) outside referrals, maternity care, ambulatory services, mental health benefits and major medical coverage.

Forty percent of the services are provided in the morning and sixty percent are provided in the afternoon and evening.

MTHP is affiliated with medical organizations and schools in these ways:

1. Physicians have teaching appointments at Dartmouth Medical School, Tufts Medical School and several teaching hospitals in Boston.
2. Two of the MTHP physicians are members of the New Hampshire Medical Society.
3. One physician is on a committee for the New Hampshire Medical Care Foundation (designated PSRO for New Hampshire).
4. All of the physicians and the physicians' assistants are licensed with the New Hampshire Board of Registration in Medicine.

There are 1,200 members of the prepaid plan and 28,000 active fee-for-service patients registered. (An active patient is one who has been to the clinic in the last 18 months). In the 1975 calendar year, 65,000 to 75,000

visits were recorded at MTHP. The majority of the patients live within a 15-mile radius of the clinic, but some live as far as 30 miles away.

MTHP has a service area population of 136,000. The average family size is 4.03 and the median income is \$10,960.

Payment for services at MTHP is from the following sources:

70.6%	Third Party Payers
16.2%	Fee-for-service (out of pocket)
9.0%	Medicaid and Medicare
4.3%	Strictly prepaid

The third party category is funded primarily through employer-employee groups by Blue Cross and is funded on a prepayment capitation basis.

MTHP has received federal funding for specific HMO projects and early development.

There are two distinct organizational structures at MTHP, administrative staff and medical staff. The Board of Directors has overall responsibility for operation of the plan. It is composed entirely of citizens of the Nashua area community (no physicians). The medical director reports directly to the Board of Directors. Under the medical director are the executive director, who is head of the administrative staff, and the chief of professional services, laboratory, X-ray, etc. Directly below the executive director are the operations manager, the finance manager and the prepayment department manager. Under the operations manager are the receptionists for telephone and appointments, and the medical record and typing supervisor. Under the financial manager are the accounting, billing, credit and collections operations.

MTHP uses a problem oriented medical record (POMR). The medical records include:

Data Elements: Identification sheet and insurance coverage
Patient ID (coding system)
Provider ID (coding system)

Clinical Data: Diagnosis, Treatment, Follow-up
Lab sheet/X-ray
Ancillary services
Drugs
Consultation and Referrals

Besides recording information in the medical record, individual data sheets are kept in one book for blood pressure readings on hypertensive patients and a central tumor registry for all patients with cancer or malignancy is kept for follow-up procedures.

All entries by providers are dictated and typed into the chart. X-ray slips are placed in the chart and entered on a lab flowsheet by the provider. Lab data are entered on a lab flowsheet by office personnel.

At present, MTHP uses an outside computer billing service. This service can document utilization by department, by diagnosis and by procedure.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

Prior to the site visit, HCMS staff received the following documents:

1. Data Collection Instrument 1 and Section 2, Part 1 completed
2. Summary of Grant Support and Capital Financing
3. Memoranda that included an outline of a peer review meeting and results of the hypertension study
4. Reports and memos identifying results of the data base chart review
5. Minutes of a peer review meeting (November 14, 1975)
6. Peer review outline sheet
7. Correspondence
8. Income Statement for MTHP, Inc., November 1975
9. Section from grant application with demographic data regarding the patient population and service area; "Denson Tables" providing a breakdown of fee-for-service and prepaid patient population
10. Audit values for the four classifications medical records are divided into
11. MTHP organizational charts for administrative staff and medical staff
12. Billing Forms for Internal Medicine and Psychiatry, Surgical, Obstetrics and Gynecology, Pediatrics and Adolescent, Medicine and Allergy
13. Pamphlet on MTHP, Inc., "A Prepaid Group Practice"
14. Patient Registration Form
15. Receipt of payment (Payment Slip)

Because no documents explaining the development and implementation of the chart audit procedure or the peer audit procedure were received, the site visit was used to obtain both documented program outlines and operational components of the program.

The four persons interviewed were the medical director, an internist, the administrative assistant and the operations manager.

The medical director has overall responsibility for the number of audits conducted, and for the assessment and assurance of quality medical care.

A specialist in internal medicine is responsible for the routine organization and implementation of quality assurance activities.

The administrative assistant is responsible for handling the data processing for all the problem oriented medical records (POMR) and the data collection and administration of the audits. She reports directly to the internist and to the medical director.

The operations manager is responsible for the organization components of the audits, organizes peer review meetings, and makes certain documentation go in and out of those meetings and is reported properly to both medical and administrative personnel.

ST. LOUIS PARK MEDICAL CENTER

Minneapolis, Minnesota

SECTION I

I N T R O D U C T I O N

St. Louis Park Medical Center (SLPMC) is a large multi-specialty group practice, operating as a profit-making business trust. SLPMC is owned and governed by physician beneficiaries who employ the entire administrative and auxiliary staff, as well as nonbeneficiary physicians.

SLPMC has been in operation since 1951, providing primary, secondary and tertiary patient care through 30 specialty services in 17 departments. The present quality assurance program (QAP) was initiated in October, 1975.

SLPMC's general organizational structure consists of a board of trustees, a president, a medical director, and a business administrator. The medical director reports directly to the president, and clinical department chiefs report directly to the medical director.

Quality assurance and review activities at St. Louis Park are being implemented in a four-year program sponsored by funds from SLPMC, INTERSTUDY and W.K. Kellogg Foundation. A \$306,000 grant from the W.K. Kellogg Foundation supports approximately one-half of the four-year program cost, and specifically supports efforts to extensively document and disseminate the implementation of the program.

The QAP staff consists of a project director, who practices one-half time in pediatrics, a full time executive director, a part-time biostatistician, one full time medical records technician and two volunteer doctoral students studying diagnostic and problem codes. The QAP has two advisory panels:

1. An advisory board comprised of ten SLPMC physicians and the assistant administrator
2. An advisory panel comprised of individuals involved with quality assessment activities throughout the country.

The SLPMC program addresses operational research-related activities by establishing a systematic administrative program for implementing a problem-identification type of quality assurance activity. Because the primary goal is to put into operation a quality assurance methodology in administrative as well as medical departments, SLPMC was included in the study.

Information presented here reflects approximately four months of operational quality assurance activities, as of the site visit date.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This entire section will describe SLPMC's planned and implemented quality assurance activities in three categories:

1. Background and planned activities
2. Specific developmental procedures conducted by quality assurance staff personnel
3. Operational activities for Phases I and II

BACKGROUND AND PLANNED ACTIVITIES

Formal quality assessment activities began at SLPMC in 1971 when the medical director initiated a peer review-medical audit system. Because it was too costly and not beneficial enough to the practice, the system was discontinued. After a period of informal activity, the present quality assurance program (QAP) was initiated because of four identifiable factors:

1. The initiative, experience and availability of the project director who came to SLPMC in August, 1975, from the Bureau of Community Health Services, DHEW
2. The willingness of the trustees and physicians at SLPMC to pioneer in a sensitive area, and to make a commitment to fund the activities
3. The willingness of INTERSTUDY to accept responsibility for the effort and to fund part of cost
4. The generosity of the W.K. Kellogg Foundation which supports the remaining portion of the program

The new QAP focuses on sound initiation of a program, identifying and solving problems on a departmental basis, monitoring the process of problem-solving, developing a sound methodology for quality assurance, and developing a cost-effective, centerwide approach to formal quality assurance.

The program was developed by the project director, who was responsible for initiating and implementing elements of the program and methodologic design in conjunction with the SLPMC president, a physician consultant, the board of trustees and the medical director.

The project director initiated communication regarding QAP developments with the SLPMC board of trustees in December, 1974, which led to five formal presentations before the board. An introductory presentation was made to the board president about the specific goals and program elements of the prospective QAP. Next, the project director made presentations to a special subcommittee and then to the full board of trustees in January, 1975. Each presentation built on previous interaction, proposing new objectives and agenda items to be dealt with at subsequent meetings. The project director then made final formal presentations to the board in April, 1975, proposing approval and endorsement of the

QAP. Following that presentation, the project director arranged a meeting between the president of the board and members of the Kellogg Foundation. After endorsement of the program, the methodological and management elements of the program were implemented.

The approach adopted by the project director for initially establishing the QAP was very formal, insuring that implementation of the program acknowledged existing managerial and supervisorial relationships and that broad understanding of program progress was possible. The operations components of the QAP were developed concurrently by the project director. Formal procedures, in a sequential pattern, were used to establish and build institutional commitment for the program by allowing the board of trustees to closely monitor the origin of the QAP. As the project developed, several practical areas required careful investigation and study prior to selection of a mode of implementation. These studies, adopting a management perspective to implementing quality assurance techniques, played a key role in the initial operations of the program.

SLPMC-QAP documents reviewed describe four program phases. This section will outline plans for each phase based on the information compiled from those documents. The section, "Operational Activities," will outline the sequence of operational activities documented during the site visit. All phases can be considered mutually exclusive, independent quality assurance programs; however, each phase builds toward a more sophisticated and comprehensive program.

In terms of developing specific program plans, SLMC has emphasized extensive documentation of future plans, reflecting a high degree of specificity in Phases I and II, now well underway, and less detail in Phases III and IV. SLMC's program established one goal for each phase, with a number of corresponding objectives. Each of the four program phases asks a question about medical practice:

Phase I: What do we all agree can be done better?

Phase II: What do we do usually?

Phase III: Do we meet our patient's expectations?

Phase IV: Are new quality assurance methods effective in our own setting?

Phase I: The overall first year goals are:

1. To develop and install a method for identifying and remedying at least 25 significant medical care problems in all clinical activities of SLMC
2. To conduct at least one problem identification session in each clinical department
3. To integrate the method in routine SLMC operations

There are eight specific activities in the Phase I of the quality assurance program:

1. Departmental meetings are held during which physicians, nurses and administrative staff identify one specific problem for review and assessment.
2. Department personnel develop a statement of the identified problem and appoint a remedy coordinator, who, along with the QAP staff, is responsible for implementation of the problem solution.

3. Appropriate data are collected for identified problem
4. A suitable data base for the problem is established
5. A pretest is conducted to discover the extent of the identified problem
6. QAP staff meets with the remedy coordinator to discuss proposed remedy and plans for implementation. Remedy coordinator then consults with clinical department medical staff.
7. Remedy is implemented by the remedy coordinator, in conjunction with department manager, administrative personnel, and QAP staff or a combination of these
8. Remedy's effectiveness is tested with a reevaluation procedure that duplicates pretest method

In pretesting problems and evaluating remedies in Phase I, many different methods are used, dictated by specific problems identified.

Phase II: The overall goal is to gather and display data from an objective screening of the universe of ambulatory patient care experiences to facilitate internal quality assurance activities (started in Phase I).

SLPMC documentation notes Phase II is largely scheduled for implementation during the second program year. Nevertheless, several tasks were addressed according to the implementation plan during Phase I. While Phase I concentrated on subjective identification of problems by professional staff members, Phase II is designed to objectively analyze patient care, which should reveal a different problem set.

There are four specific activities in Phase II:

1. Identification and prioritization of specific outputs of Phase II activities
2. Implementation of routine outputs based on the computerized Medical Service Record (MSR) information
3. Establishment of parameters for specific practice profiles with information generated through computerized information about diagnoses, reasons for visit and procedures
4. Integration of outputs into Phase I activities

Phase III: The goal is to develop and install a system for regular patient feedback about the care they expect and have received to enable appropriate modification of patient behavior and provider performance by:

1. Selecting and implementing a method for evaluating and quantifying patient and physician expectations of medical care
2. Assisting in the development and evaluation of patient and provider education programs to encourage appropriate expectations and modify inappropriate expectations
3. Integrating these formalized insights into Phase I activities

Phase IV: The goal is to identify, modify and integrate additional quality assessment techniques into the QAP (Phases I, II & III) by performing an annual survey of new external developments in quality assurance such as public and private regulatory activities.

Phases I to IV describe activities which gradually build a more sophisticated and comprehensive program. Total program evaluation must await implementation of all four phases, although operational evaluation of each phase is regularly conducted. Each phase, especially Phase I, is intended to function as an individual quality assessment program with specific goals and results.

OPERATIONAL ACTIVITIES

The full implementation of Phase I and initial implementation of Phase II were completed based on the plans outlined in the preceding section. Most operational activities matched those planned. It is important to note some activities, although not formally planned, were implemented as key components of the program (Point 2, below). This seems to emphasize the importance SLPMC places on managing a quality assurance approach, rather than just implementing activities.

Implementation activities of Phase I actually occurred as follows:

1. QAP staff scheduled 14 clinical department meetings to identify problems.
2. Prior to conducting departmental meetings, the QAP staff met with various administrative personnel, including patient educator, HMO advisor, patient counselor and business manager to discover if they had any identifiable problems to be included in identification sessions.
3. Fourteen departmental meetings were held involving an orientation by the medical director, asking physicians to identify significant problems in medical care which can be remedied. Over 200 problems were identified.
4. After identification of several problems, department personnel were required to select only one problem for pretest. Meetings included the QAP staff, manager of the department, head nurse of department, medical director, and departmental physicians.
5. Physician remedy coordinators were selected for each department.
6. QAP staff subsequently met with remedy coordinator to refine the statement of problem and to develop method to pre- and post-test problem and design remedies.
7. Remedy coordinator reported back to department to ascertain agreement on statement of problem and remedy method.
8. QAP staff pretested the problem to determine problem extent and frequency. Nine pretests were completed. The development of method involves identifying the data elements necessary to quantify the problem, such as the development of explicit screening criteria by departmental physicians for problem measurement, examining a statistical minimum sample of medical records, or some other appropriate data source to collect relevant data for each problem. No one

systematic methodology is applied for all problems identified, or any specific format to construct departmental consensus on an approach for examining and solving problems.

9. QAP presented pretest results to remedy coordinator, whereupon the remedy was implemented. Ten remedies were implemented. QAP staff indicated different individuals may participate in implementing solutions, but the remedy coordinator has direct responsibility for implementation.
10. Remedies were reassessed after an appropriate amount of time had elapsed (usually three to six months), employing the same method used in the pretest.
11. Results of successful problem resolutions were then publicized by the QAP staff.
12. All effective remedies are periodically reassessed to assure that the remedy continues to be effective.

In terms of initial implementation of Phase II, QAP staff has identified four data elements to be systematically collected from the MSR encounter for development of a routine data base to describe or develop profiles of ambulatory care at SLPMC:

1. Reason for visit
2. Procedures
3. Diagnosis
4. Cost

This process is scheduled for a later date. Other tasks were addressed during this period, including:

1. The establishment of access to the patient care data base
2. The identification of the most appropriate diagnosis and problem or reason-for-visit code(s)
3. The performance of selected in-depth analyses using the patient care data base
4. The analysis of patient numbering systems at the primary hospital
5. The establishment of early liaison with the local PSRO

ADDITIONAL COMMENTS

Several unique characteristics of SLPMC were identified for study staff during the site visit. These unique items were noted in relation to their importance to development and implementation of formal quality assessment activities:

1. Full support of administration and medical staff
2. Positive attitude of physicians toward formal quality assurance process

3. Personal commitment of top administrative and medical staff
4. Direct role of project director in all phases of program development and implementation

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

SLPMC has 78 physicians providing multispecialty ambulatory and inpatient services through 17 departments. There are 30 services within those departments, as follows:

<u>Specialty</u>	<u>No. Physicians</u>	<u>Specialty</u>	<u>No. Physicians</u>
Allergy	4	OB-GYN	6
Cardiology	4	Oncology	4
Dermatology	3	Pediatrics	8-1/2
ENT	3	Surgery, General	5
Eye	3	Surgery, Orthopedic	5
Family Practice	9	Surgery, Thoracic	1-1/2
Industrial Medicine	2	Urology	2
Internal Medicine	14-1/2	X-Ray	2
Neurology	1		

Other services include the provision of Patient Education Programs, Family Counseling Programs, Physician Education Programs and Nurse and Paramedic Education Programs. Allied services of dietitian, physical therapist, orthoptist and audiologist are also provided.

SLPMC serves a total patient population of approximately 210,000 people, primarily middle and upper social class. In 1975, 377,000 patient visits took place. There were 23,504 new patients last year. The majority of the population lives within a 25-mile radius of the medical center:

- 76% - from suburban Minneapolis
- 17% - from city of Minneapolis
- 7% - from outside metropolitan area

Between January 1 and August 24, 1975, total charges for 209,945 patient visits amounted to \$6,286,814.

Although predominantly a fee-for-service practice, a SLPAC-sponsored closed panel prepaid plan accounts for approximately 12% of patient activity.

The organizational structure consists of a business administrator and a chief medical executive-president elected to a one-year term by the Board of Trustees. Members of the board are selected for a three-year term by owners of the Beneficial Interest and Trust. The board convenes twice a month. The president and the chief of the medical staff are responsible for the medical business of the SLPAC. Clinic operations are decided through statements of policies for nonphysician personnel and members of the clinic medical staff. The clinic medical staff discusses policies at weekly department meetings.

Of 78 physicians, one is a regular consultant in pathology; one more physician is full time, but totally occupied by clinic research. The support staff is illustrated in Figure 1.

Figure 1

<u>General Support Staff Positions</u>	<u>No. Personnel</u>
Administrator	1
Administrative Assistant	1
Registered Nurse	19
Licensed Practical Nurse	33
Physician Assistant	8
Nurse Practitioner	3 (FTE)
Office Medical Assistant	10
Registered Laboratory Technician	10
Laboratory Assistant	14
X-Ray Technician	7
X-Ray Secretary	1
Secretary	6
Receptionist	40
 <u>Record Room</u>	
Registered Medical Records Technician	1
Clerk	32
Medical Secretary	27
 <u>Business Office</u>	
Business Manager	1
Cashier	2
Insurance Clerk	7
Billing Clerk	8
Credit Clerk	7
Accountant	1
Accounts Payable Clerk	2
 <u>Data Processing</u>	
Supervisor	1
Keypunch and Verifying Operators	6
Computer Operator	1
 <u>Ancillary Departments</u>	
Physical Therapist	2
Audiologist	1
Electroencephalogram Technician	1
Electrocardiogram Technician	4
Psychiatric Social Worker	2
Clinical Psychologist	1

Chronological medical records are filed manually on a Remington-Rand open shelf rack using prenumbered, precolor coded terminal digit chart folders and Soundex Indexing consoles.

The computer system currently in use at SLPMC is a Univac 90/30 system configuration with central processor, an operator's CRT display console, an integrated card reader (500 CPM), an optimal integrated card punch (75-160 CPM), an integrated printer (500 CPM) and two integrated disk drivers with a capacity of 57.8 MB. Memory sizes range from a minimum of 32,768 bytes to a maximum of 262,144 bytes of data.

Characteristics of the computer are:

1. 131 K core (memory)
2. No "canned" programs for special study
3. "ALL" languages can be used for programming
4. Temporary disk storage is available

SLPMC staff have several service affiliations:

- Conduct general surgery and OB-GYN residency programs in conjunction with the University of Minnesota.
- Conduct a Family Practice residency program in conjunction with Methodist Hospital and the University of Minnesota.
- Share in the rotation of fellows with the University and the Hennepin County General Hospital in areas of Oncology, Gastroenterology and Pulmonary Medicine.
- Teach at Hennepin County General Hospital, Minneapolis VA Hospital and St. Paul Ramsey Hospital.

As noted above, St. Louis Park Medical Center's quality assurance program depends on a high degree of interaction between the clinical departments, administrative personnel and the quality assurance staff. The method of assessments is built on that strong interaction, which will determine the continued success of the program.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

SLPMC agreed to participate in this study by telephone on October 21, 1975, and by follow-up correspondence, November 25, 1975. Program documentation received and compiled included:

1. Fact sheet on the delivery system of SLPMC
2. Medical Record
3. Questionnaire filed by SLPMC with AMA AMC headquarters for accreditation
4. MSR forms utilized by physicians during patient encounters
5. A detailed description of the QAP incorporated the following:
 - a. Initial quality assurance plan document (dated July 1, 1975)
 - b. QAP goals and objectives
 - c. QAP schedule and outline
 - d. Outline of QAP presentation (slide presentation)
 - e. List of advisors and their roles in the QAP
 - f. Quality assurance questionnaire given to entire physician staff
 - g. Quality assurance meeting schedule and format
 - h. Flow chart indicating specific steps and activities involved in the assessment of quality
 - i. List of problems generated by each department to be focused on by the QAP
 - j. List of administrative problems selected for resolution by SLPMC administration and QAP staff
 - k. Status sheet

This documentation outlines the goals, objectives, general program elements, time schedules and resource commitments for the SLPMC Quality Assurance Program over a four-year period. The Data Collection Instrument (DCI) and Administrative Constraints Questionnaire (ACQ) were administered during the site visit, January 26 and 27, 1976.

The site visit resulted in 120 minutes of taped interviews. Questions were administered to the following SLPMC personnel:

1. President of SLPMC
2. Medical Director
3. Project Director of QAP
4. Executive Director of QAP
5. Biostatistician, QAP
6. Assistant Administrator, SLPMC

Topics were:

1. Staffing for the quality assurance program
2. Development of the quality assurance program with the board of trustees
3. Pros and cons of particular quality assurance methods

4. Specific activities of quality assurance program staff
5. Content of departmental problem-identification meetings
6. Unique variable of SLPMC's involvement in a formal quality assurance program
7. Short and long-range goals of quality assurance program

HARVARD COMMUNITY HEALTH PLAN

Boston, Massachusetts

SECTION I

I N T R O D U C T I O N

Harvard Community Health Plan (HCHP), in operation since 1969, is a large prepaid group practice consisting of two health centers licensed by the Massachusetts Department of Public Health (MDPH): the Kenmore Center with an outreach program in Roxbury, and the Cambridge Center which opened in early 1975. The Quality Assurance Program (QAP) of HCHP began officially in October, 1974, and selects problems or diagnostic conditions for study. Usually, standards are developed for the management of the problem or diagnosis, and information is collected to assess delivery system performance vis-a-vis the review topic. The quality assurance activities at the Kenmore Center are the subject of this document.

The basic data set for this program is the computerized medical record known as COSTAR - The Computer Stored Ambulatory Record. COSTAR is the result of a joint effort of HCHP and the Laboratory of Computer Science (LSC) at Massachusetts General Hospital. It has taken six years to develop and implement and expands upon the capabilities of the traditional medical record. HCHP has a joint contract with LCS for the maintenance of COSTAR.

A board of directors oversees the policy direction of HCHP in conjunction with an executive committee. The two bodies interact on important matters with the plan's key administrative staff, the leadership of the physician's group and the Consumer Advisory Council. The medical director and two associate medical directors (who each serves as director of one of the health centers) have general responsibility for overseeing care provided by Plan staff. The Quality Assurance Committee coordinates quality assurance activities. Its chairman during the first two years has been the medical director.

There are 60 physicians employed by HCHP, 34 of whom practices at the Kenmore Center. Virtually all members of the clinical staff hold joint appointments at the Harvard Medical School, and 85 to 90% of the staff are board certified.

Harvard Community Health Plan was asked to participate in the study group for the following reasons:

1. It is a large group practice
2. Numerous quality assurance activities have been implemented in this setting
3. The operation is facilitated by a very sophisticated computer system

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section will describe HCHP quality assurance activities in three areas:

1. Background of program development and the initial developmental period
2. Elements of quality assurance program described in HCHP documents
3. Operational quality assurance activities

Information used in this section came from three sources:

1. Documentation outlining some program plans and results of operational activities
2. Quality Assurance Committee minutes
3. Investigators' notes from interviews

BACKGROUND

The documentation and interviews revealed seven factors which brought about the development of the HCHP quality assurance program:

1. Interest and support given by the Dean of Harvard Medical School
2. Interest, support and commitment expressed by the physicians and nurses on the staff of HCHP
3. The fact that physicians were able to direct their feelings about quality review and quality assurance toward the total goals and objectives of the program and not at specific individual error
4. The availability of a diverse patient population of HCHP
5. External pressures presented by PSRO and HMO laws
6. Need for follow-up to some of the quality assurance work already done at HCHP
7. COSTAR (automated medical records system)

FORMALLY PLANNED ACTIVITIES

The first organized effort in quality assurance began in 1972-1973, after an extensive literature review. The Department of Internal Medicine, through a contract from the Community Health Services Division, implemented three activity areas:

1. Quarterly tabulations of diagnosis and medications prescribed by individual physicians in Internal Medicine
2. Frequency distributions of utilization by individual members
3. Specific quality of care problems audited according to developed explicit process criteria

In each aspect of the study, some useful information was obtained and certain methodological problems were identified. The documentation noted the study focused primarily on three sequential steps which may be part of any quality assurance program: (a) selecting tracers, (b) establishing criteria, and (c) auditing performance. However, study results indicated to HCHP personnel that measuring improved quality and assessing criteria required more emphasis. Consequently, during late 1973 and early 1974, plans were made to establish a formal quality assurance program, centered around a Quality Assurance Committee. In the fall of 1974 the HCHP medical director moved to establish a formal method and an administrative program. After discussions and deliberations among HCHP provider staff, the HCHP Quality Assurance Committee (QAC) was formed.

Documentation indicates the Quality Assurance Committee consists of 11 members including physicians, RNs and administrative staff. Their function is to insure performance of the QAP in the major clinical specialties represented. Each specialty and department is responsible for developing its own priorities for quality assurance activities and studies. Meetings are held every two weeks between 7:30 and 8:30 a.m. Members from the varied clinical specialties meet to discuss new quality assurance activities and review current actions. The chairman of the committee selects an agenda for each meeting and has the minutes reproduced and distributed to the committee members.

The formal QAP is only one aspect of HCHP quality assurance activities, which also include:

1. Established standards for selection of MDs
2. High degree of staff interest in quality assurance
3. Use of the POMR format and common records, and
4. Dynamics of group practice mode

According to the proposal submitted to the Public Health Service, the goals and objectives of the formal QAP are as follows:

1. To document impact on the provider and system behavior of concurrent feedback to the provider regarding individual cases in which inadequate compliance with agreed upon standards is detected
2. To document the usefulness of a computerized ambulatory medical record system in monitoring compliance with the requirements for good care established by the QAP
3. To develop as an integral component of the health care delivery system a QAP which uses both process and outcome methodology and meets the formal requirements of P.L. 93-222 (HMO Act of 1973) for a QAP
4. To report the experience derived from the QAP to assist other HMOs as well as PSROs involved in quality assessment of ambulatory care, in preparing programs suited to their own practice setting

HCHP and LCS have developed a QAP with one important and unique characteristic, an extensive and automated data system. The QAP revolves around a four-step process, involving data collection and audit support functions performed by the computerized data system (COSTAR). These four steps are as follows:

1. Selection of tracers
2. Selection of criteria and standards for these tracers
3. Audit of performance based on computerized criteria and computerized audit functions
4. Feedback from the QAC regarding corrective action and improvement of performance

The data sources for quality assurance information are the computerized encounter form (medical record) and the lab and X-ray entries. Medical information is captured as a provider marks a precoded entry form, although he may use additional modifiers or free text. The information is entered at a computer terminal (CRT) within 24 hours by clerical personnel. Information relating to the encounter is available on demand through CRT-display; alternatively, computer-generated printouts are prepared through the medical record room for routinely scheduled patients.

The COSTAR medical information system supports all four stages of the quality assurance program, but the documentation did not describe the support in detail. The criteria selected are all in computer retrievable form. Each step of the four-step process is described below:

Step One - Selection of Tracers

Tracers were selected on the basis of the five criteria defined by Kessner* and one additional criterion developed by HCHP. This sixth criterion deals with relating the significant expenditure of time and money by the health care system for chosen tracer conditions. The tracers chosen for study thus far have been: (a) hypertension, (b) urinary tract infections, (c) sore throats, (d) diabetes mellitus, (e) otitis media, (f) serology (for syphilis, etc.), (g) pediatric well child care, (h) prenatal care, (i) colorectal cancer and (j) pap smear.

Step Two - Criteria and Standards Development

Each department develops its own criteria for the tracer conditions. The documentation notes the usual approach is to develop criteria by compromising between ideal care based on expert medical opinion and a clearly unacceptable care pattern. Computerized protocols represent boundary conditions of acceptable care. Since the criteria are computerized, the computer establishes variance based on explicit and exact standards.

Criteria are updated, as needed, after review and assessment at a departmental level. Departments reevaluate and establish new performance levels based

*Kessner, David M., Kalk, Carolyn, Singer, James: Assessing health quality - the case for tracers, New Engl J Med 288-189-193, 1973.

on existing criteria and standards. The departmental updates and reformulations are accomplished through discussions, consensus and use of initial assessment data.

Step Three - Audit of Performance Based on Computerized Criteria and Computerized Audit Functions

This step places emphasis on concurrent feedback (i.e., deviations from pre-determined criteria of care of individual patients are fed back to physicians for correction). In addition, aggregate data are prepared periodically for analysis. To identify provider inadequacy, all encounters outlining the tracer description are for audit purposes. Every case having the particular disease problem, lab test or medical care activity is monitored. Performance is audited according to computerized criteria. The review of audits, however, is conducted by the QAC and by the person receiving the audit.

Step Four - Feedback from the Quality Assurance Committee Regarding Improvement and Corrective Action of Performance

The Quality Assurance Committee and department personnel review initial monitoring and attempt to assess whether deviations occurred in the care process or the recording process. Initial monitoring involves identification of patients with gaps in criteria and notification of the individual provider of the deficiency. Feedback action is addressed to the area in which the failure occurred.

Feedback as determined by the QAC is based on two broad criteria:

1. Feedback and education must be relevant to a particular situation
2. Feedback and education must be timely and must affect this situation

There is no formal mechanism for enforcing corrective action. Most deviations are "system failures" rather than examples of deficits of knowledge about what to do; for example, hypertensive patients who are not told to return for follow-up or, who are told to return, but fail to do so. The aggregate data on performance is used for educational programs. After the computer audit flags a variant case, the QAC reviews the deviation. A notification and questionnaire attached to the specific case that was reviewed may be sent to the provider. The provider then has the opportunity to disagree with the standard or to state why it is inapplicable in specific situations, and may respond to the audit through discussion with the department chairman. The department chairman is responsible for deciding future action. The judgment of the committee is not systematically validated, although extensive discussions occur prior to this final review and corrective action.

The computerized system enables the provider to be notified of a failure in compliance with a specific standard at any time while the patient is undergoing treatment. Therefore, the provider can correct the error brought to his attention.

OPERATIONAL ACTIVITIES

To determine the present operational status of quality assurance activities at HCHP, minutes from Quality Assurance Committee (QAC) meetings were compiled and analyzed (October 10, 1974 to January 22, 1976) in conjunction with specific project information abstracted from the Public Health Service Grant dated September 11, 1975 (from LCS and HCHP regarding a computer-based ambulatory QAP). Study staff attempted to match activities by listing the particular disease or condition under review, and sequentially listing operational activities relative to that topic. Figures 1 through 11 describe in detail the quality assurance activities that have taken place at HCHP according to the QAC minutes and Public Health Service Grant. Activities are listed chronologically according to source document. Because specific dates were not listed in the grant, HCMS staff estimated dates for some activities.

Although the documentation indicates quality assurance activities are coordinated by the QAC, certain activities were described in the grant that were not described in the QAC minutes (see Urinary Tract Infections - Figure 4). The operational quality assurance activities are more varied and extensive than the documented planned activities involving the audit and review of several specific disease conditions. The project section of the grant also failed to describe certain activities noted in the QAC minutes (Encounter Form, Figure 1, Anemia, Figure 2, and Breast Lump Surgery, Figure 3). The activities of the remaining topics were described in both document sources (see Serology, Figure 5, Hypertension, Figure 6, Sore Throat, Beta Hemolytic Strep, Figure 7, Prenatal Care, Figure 8, Pediatric Well Child, Figure 9, Colorectal Cancer - Rectal Exam, Figure 10, and Pap Smears, Figure 11).

The responsibilities of the QAC are as follows:

1. To coordinate quality assurance activities
2. To assure that quality assurance activities are taking place
3. To assure that adequate follow-up is performed where problems are found

The individual specialties have responsibility for initiating studies and determining appropriate priorities. The process by which all of this happens appears to be informal, without specific guidelines.

In numerous instances (specifically for Anemia, Figure 2, Breast Lump Surgery, Figure 3, Hypertension, Figure 6, Beta Hemolytic Strep, Figure 7) activities are initiated, including protocol development, and staff interaction occurs; then the activity disappears from documentation. The QAC is an active committee and did not set its time schedule or update reports on each project to fit the review team's schedule. Therefore, it was difficult to discern whether the specialty or representative or QAC did not pursue a particular topic, or whether activities were continued, but were not reported.

The grant documentation summarizes quality assurance activities occurring for specific topics. Topics are discussed with regard to Tracer Choice (the choice, not how it was chosen); Criteria (the actual criteria, not how they were developed); Audit (type of study); and Improvement (what has been done

to improve conditions and where activities are as of September, 1975). No dates are given except for a specific data collection period.

The QAC minutes are detailed regarding dates and the type of activity in which the QAC was engaged at the time, but information on activity development up to this point is lacking. For example, from what department did the idea for Beta Hemolytic Strep (Figure 7) as a tracer condition originate?

QAC minutes recorded a high rate of attendance at the 7:30 a.m. meetings, as well as a high level of interaction between QAC members and individuals from different clinical specialties. Each representative from a specialty addressed quality assurance issues pertaining to his field and took part in determining quality assurance issues outside the specialty.

The specific actions taken by the QAC varied somewhat by topic. Some general activities are listed:

1. Revision of topics for review
2. Revision of methodology (essentially data collection and analysis)
3. Review and approval of topic criteria and protocols
4. Discussion of implementation of study for topic
5. Recommendations for departmental action
6. Analysis and discussion of data collected with regard to each topic
7. Discussion of reviews conducted within the context of each clinical specialty

The HCHP quality assurance effort, as documented, reflects a high frequency of complex interactions between a number of HCHP departments and physicians. The following figures reflect this and provide specific information on the types of issues the QAC has addressed over an extended period.

Figure 1
QUALITY ASSURANCE ACTIVITIES
IMPLICIT CHART REVIEW, INTERNAL MEDICINE

DATE	SOURCE DOCUMENT	ACTIVITY
10/10/74	Minutes	Chart audit of ten specific characteristics of IM for improvement of form
11/21/74	Minutes	Medical record system modified to contain information required for F-U, e.g., flow charts, date of visit, etc.
9/4/75	Minutes	Proposal presented to QAC by IM for conducting implicit chart review
10/2/75	Minutes	Issues of implicit chart review raised by QAC, e.g., (1) What encounter forms to focus on; 2 to 12 months old; (2) physician-nurse team
10/30/75	Minutes	Proposal brought before QAC again; discussion and endorsement of issues by QAC

IM = Internal Medicine
F-U = Follow-up
QAC = Quality Assurance Committee

Figure 2
QUALITY ASSURANCE ACTIVITY
ANEMIA

DATE	SOURCE DOCUMENT	ACTIVITY
10/24/74	Minutes	Dr. _____ to check with Pediatrics Department regarding flags for abnormal lab procedures. Dr. _____ to go back to IM to obtain acceptable limits for study. Beginning to develop detailed specifics. Will be reviewed by Dr. _____ and Dr. _____ of IM.

Figure 3
QUALITY ASSURANCE ACTIVITIES
BREAST LUMP SURGERY

DATE	SOURCE DOCUMENT	ACTIVITY
10/10/74	Minutes	Dr. _____ explained to QAC steps taken by Surgery Department to compare quantity of visits by surgery, length of stay and complication, rates for hospital patients, reactions to care by patients from questionnaire, monitoring of feedback from referring physician regarding impression of performance at Surgery Department.
10/24/74	Minutes	To get 50 records (sample) of patients with surgery (breast mass) to examine care and F-U records chosen from 10/1/73 - 3/31/74.
11/7/74	Minutes	Dr. _____ and Dr. _____ looking at management of 50 patients with diagnosis "breast lump" and considering approach to monitoring.
12/5/74	Minutes	Notes prepared on breast lump issue distributed to QAC by Dr. _____.
12/17/74	Minutes	Preliminary results of review of 45 charts with "breast mass" presented to QAC by Dr. _____. Significant finding was insufficient data. Guidelines for minimum criteria of data should be established by surgery group. This will be addressed in greater detail later.

F-U = Follow-up

QAC = Quality Assurance Committee

Figure 4
QUALITY ASSURANCE ACTIVITIES
URINARY TRACT INFECTION

DATE	SOURCE DOCUMENT	ACTIVITY
?	Grant	UTI chosen as tracer at 2% of adult visits.
?	Grant	Protocols established for women 16 years and over with positive urine culture.
?	Grant	A preliminary run of 50 patients with positive cultures performed; 33 found without adequate F-U.
?	Grant	Wished to know if failure to F-U results in further return visits to HCHP with symptom infections. Therefore, did preliminary retrospective study on all patients with positive cultures who were members of HCHP for one year following culture. Patients divided into two groups, those without adequate F-U and those without adequate F-U although data not analyzed in detail yet; no difference in two groups.
9/75	Grant	UTI program at a crucial point at this time. Have established on preliminary basis that performance is inadequate (according to criteria) 66% of time in the sense that a past treatment urine culture not determined. Analysis of data on patients receiving culture not receiving the suggested follow-up culture failed to reveal any difference in their subsequent variability relative to recurrent UTIs. A more extensive retrospective study is planned.

UTI = Urinary tract infection

F-U = Follow-up

Figure 5
QUALITY ASSURANCE ACTIVITIES
SEROLOGY

DATE	SOURCE DOCUMENT	ACTIVITY
10/10/74	Minutes	F-U study on patients with positive serology indicated.
1974 1975 (early)	Grant	<p>Implicit review of 101 positive serologies (Kenmore patients) performed by one member of Department of Medicine and HCHP liaison V.D. Public Health Nurse. Automated findings:</p> <ol style="list-style-type: none"> (1) Records judged inadequate in 45 patients based on automated data (2) Liaison nurse unaware of 16 patients (3) Unnecessary and costly repetition of FTA-Abs. tests. (4) F-U exams and serologies almost uniformly not obtained
6/26/75	Minutes	More ideas on F-U of abnormal serologies presented to QAC. Protocol will be prepared to allow for print-out of all patients with positive serologies and to flag those without F-U. Dr. _____ will handle review to assess against criteria.
7/24/75	Minutes	Proposal for F-U of patients with positive serologies presented and endorsed by QAC. Flow chart for monitoring protocol circulated
Mid-1975	Grant	<p>Concurrent review set up based on initial study (grant notes above). It will be a manual review because cases are few and (1) for each positive serology in record, computer generates timely reminders to obtain necessary F-U exams, (2) computer generates copies of record for nurse and Medical Department member. Manual audit includes:</p> <ol style="list-style-type: none"> (1) Proper classification (2) Indication of previous treatment (3) Plans for evaluation and treatment
9/75	Grant	A before and after study of adherence to criteria will be performed. Plan to do cost accounting with this. Will not be able to show number of cases without tertiary syphilis prevented by actions. May be able to demonstrate a reduction in unnecessary costs; however improved F-U = more costs.

F-U = Follow-up
QAC = Quality Assurance Committee

Figure 6
QUALITY ASSURANCE ACTIVITIES
HYPERTENSION

DATE	SOURCE DOCUMENT	ACTIVITY
Early 1974	Grant	Hypertension chosen as tracer (through Department of Internal Medicine).
Mid 1974	Grant	To evaluate F-U of abnormal blood pressures, retrospective audit conducted on all HCHP members who had diastolic pressure of 100+ or were diagnosed as hypertensive prior to 1974. Result was that 1/3 of population diagnosed as "severe" (120+) had inadequate F-U and 57% diagnosed as "mild" (100+) had inadequate F-U.
10/10/74	Minutes	Development of protocols to monitor hypertensive patients initiated.
10/24/74	Minutes	Need to go back to IM and clarify specifics. OB Department to perform analysis on hypertensives found in OB-GYN Department. Prototype for hypertension reviewed and revised. Membership requirements for study changed. Also need to identify specialty where blood pressure recorded
12/5/74	Minutes	Hypertension proposal for monitoring patients distributed to QAC.
End of 1974	Grant	Standards for F-U of hypertensive patient established.
4/1 - 12/31/74 (study period)	Grant	Computer scanned patients over age 16 and identified 327 HCHP members with elevated diastolic pressure. 112 of these (34.2%) had no F-U within 6 months. These cases put into random control and random experimental groups. If in control, no action taken. If experimental, notification sent to provider by QAC re justification. Results thus far are failure to keep appointments and overlooked or less important problems.
End of 1974	Grant	F-U records of patients being examined at 3-month intervals throughout 1975. At end of year (75?) will be able to determine if review led to improvement. Goal is limited and short-term.
1/9/75	Minutes	Early experience with hypertension protocols reported. F-U only taken place for past month. Beginning to be fed into computer.

F-U = Follow-up
IM = Internal Medicine
QAC = Quality Assurance Committee

OB = Obstetrics
GYN = Gynecology

Figure 7
QUALITY ASSURANCE ACTIVITIES
SORE THROAT-BETA HEMOLYTIC STREP (BHS)

DATE	SOURCE DOCUMENT	ACTIVITY
10/10/74	Minutes	F-U study on patients with positive cultures for BHS taken.
Late 1974	Grant	QAC felt that standard of care = every patient with positive culture for strep should be treated within 4 days after culture.
10/24/74	Minutes	Protocol details needed on results so far. Steps taken in cases found with positive cultures without record of treatment. Letters sent to providers re why treatment not given (on monthly basis 10/1/73-10/1/74).
11/7/74	Minutes	Method for study re F-U of patients with positive BHS developed. Patients without treatment flagged by memo from QAC. Memo of rationale circulated to QAC. Data presented on number of cultures, percent positive each month and percent of these not treated.
11/74	Grant	Computer-based concurrent review initiated: (1) every case with positive BHS noted automatically, (2) if no entry of antibiotics, provider notified, (3) computer continues to monitor until situation remedied.
1/9/75	Minutes	Early experience with strep protocols reported to QAC by Dr. _____. Preliminary data reveal greater than 50% failure to treat, actually failure to record information; 20% on form, not in system; 30% not treated.
1974, 75	Grant	Results: (1) Provider notified; (2) Notification oriented to specific patient care situation, record included; (3) Provider encouraged to respond to 12 (4-day) notifications sent. Of these, 1/3 treated, not recorded; 1/3 completed too late; 1/3 failure of lab, or patient-provider communication breakdown.
Year ending 3/1/75	Grant	Retrospective analysis of HCHP experience of "sore throats" reported in 5,680 cases (all specialties).
3/20/75	Minutes	Throat culture monitoring presented to QAC by Dr. _____. Areas of potential monitoring identified. Additional information about strep study to be circulated.

F-U = Follow-up

QAC = Quality Assurance Committee

Figure 8
QUALITY ASSURANCE ACTIVITIES
PRENATAL CARE

DATE	SOURCE DOCUMENT	ACTIVITY
11/21/74	Minutes	Standards developed for conduct of prenatal care by OB-GYN. Staff will develop tolerance ranges. Outcome measures relating to pregnancy and newborn form will be reviewed to establish way of correlating process measures with outcome variables. Form will be reviewed by Dr. _____ and Dr. _____. Boston Hospital for Women asked to supply reports of outcomes and separate HCHP patients. Role of internist discussed. Important to establish communication between departments for problems with pregnancy. Ways being explored by OB-GYN.
12/12/74	Minutes	Dr. _____ asked to indicate to QAC standards being established and tolerance ranges.
End of 1974	Grant	OB Department has developed a set of process criteria which identify elements to be incorporated in a prenatal service program for every pregnant woman receiving care at HCHP.
1/23/75	Minutes	OB approach for monitoring discussed with QAC. Description of summary operations, protocols, etc., circulated. 25 records reviewed to measure compliance with protocol. Conclusion - all items in protocol carried out. Steps (suggested by QAC) made to integrate show and no-show in computer. Dr. _____ asked to develop monitoring through computer for small group in Cambridge.
2/3/75	Grant	Computer program to monitor compliance with criteria developed. Program will check for performance of elements (1) within 6 weeks of 1st visit, (2) for each subsequent visit, (3) at appropriate times.
3/75	Grant	At each prenatal visit, a flow-chart summarizing patients' compliance with criteria will be presented to the provider with attention directed at any deficiencies. After pregnancy, extent of compliance with requirements for 1st prenatal visit, frequency and timing of last visit to be described. An index which summarizes the degree of compliance with full set of standards will be used to describe each pregnancy.

Figure 8 continued:

DATE	SOURCE DOCUMENT	ACTIVITY
4/17/75	Minutes	Dr. _____ reported (to QAC) on initial results of QA program for prenatal patients (3/31/75). Preliminary study looked at performance, etc. - 87% compliance.
8-9/75?	Grant	Re: Boston Hospital for Women study. This would involve isolating data for pregnancy outcome for HCHP members, analyzing rates of complications, conditions and pregnancy outcomes in comparison with non-HCHP women at Boston Hospital for Women and determine extent to which a correlation exists between outcome and process. For each individual pregnancy, a score will be computed using process and outcome measures and a correlation between these scores for entire population determined. Possible throughout study to monitor compliance with process criteria. Results of study will be prepared for each physician-nurse team, shared with teams and chief of service and used as basis for developing strategy should significant problem areas emerge. Data will be broken down by source of enrollment for different risk groups.
10/30/75	Minutes	F-U report on QA preliminary study reported to QAC by Dr. _____. Higher compliance rate than preliminary study. Dr. _____ reported efforts underway for Boston Hospital for Women to provide information re outcomes of pregnancy. Computer-acceptable form will be prepared by physician each delivery (to compare process with outcome). A high degree of enthusiasm by QAC re (1) high OB compliance and (2) future QAC-QA possibilities.

OB = Obstetrics

GYN = Gynecology

QA = Quality assurance

QAC = Quality Assurance Committee

Figure 9
QUALITY ASSURANCE ACTIVITIES
PEDIATRIC WELL-CHILD

DATE	SOURCE DOCUMENT	ACTIVITY
10/24/74	Minutes	Pediatrics Department developing specifics for immunization requirements, standards of care for patients up to 6 months. Pediatrics Department will be asked to develop specific proposal for monitoring of care. Special attention will be given to patients seen and not treated vs. those not seen.
11/7/74	Minutes	Plan prepared for monitoring well-child care presented to QAC includes: (1) items to be monitored, (2) time intervals for flagged patients not measuring up to standards, (3) membership requirement of target population.
11/21/74	Minutes	Proposal presented to QAC - "minimum criteria for quality of care in well-child area." Dr. _____ to return in 4 weeks with recommended criteria and tolerance ranges.
12/12/74	Minutes	Dr. _____ asked to prepare memo identifying reasons Department of Pediatrics monitors, method of standard establishment, actual standards, and tolerance ranges.
12/19/74	Minutes	Extensive thought given by Pediatrics Department to minimum criteria proposal. Department to review recommendation next month and come back with final proposal indicating age groups to be surveyed, selected criteria for priority and time tolerances.
1/9/75	Minutes	Proposal for monitoring well-child care discussed. Protocol will be implemented with 3 purposes: (1) children less than 6 years, (2) children who are subjects of Supplementation Evaluation Program on health costs, (3) Dr. _____ and Dr. _____ working to develop F-U on study of two years ago on missed appointments.
1/23/75	Minutes	Common protocol to meet needs of above being developed.
2/6/75	Minutes	Program developed by Pediatrics Department to accommodate above needs circulated and accepted by QAC. Dr. _____ asked to facilitate activities as soon as possible.
3/20/75	Minutes	First computer run of pediatric utilization and immunization surveillance made. Data delivered. Pediatrics Department presented draft questionnaire for contacting low utilizers and not-up-to-date immunizations. Constructive criticism of questions and methods made by QAC to go back to department and be redrafted.

Figure 9 continued:

DATE	SOURCE DOCUMENT	ACTIVITY
Summary 1974-75	Grant	Members of Department of Pediatrics analyzed various criteria. Table for minimum criteria for quality of care established with standards and minimum content necessary for adequate care. All information computerized.
3/75?	Grant	Department of Pediatrics has prepared set of priorities for making direct contact with parents whose children haven't met recommended criteria. System will monitor compliance of individual patients with recommended criteria. Direct contact will be made by letter to parents, beginning with highest priority group.
Mid-late 1975?	Grant	Degree of compliance of particular practitioner with recommended schedule will be monitored and information will be made available to chief of service and to each practitioner.
1/22/76	Minutes	Dr. _____ mentioned (to QAC) study of immunization status of children in Boston schools. Dr. _____ introduced discussion of analysis of compliance with well-child program at Kenmore. Dr. _____ and Dr. _____ said that much noncompliance is technical error and small degree of variation in compliance between employer groups.

QAC = Quality Assurance Committee
F-U = Follow-up

Figure 10
QUALITY ASSURANCE ACTIVITIES
COLORECTAL CANCER RECTAL EXAMS

DATE	SOURCE DOCUMENT	ACTIVITY
9/4/75	Minutes	Dr. _____ introduced protocol proposal (to QAC) presented and developed by IM for monitoring routine rectal exams for patients over age 40. Discussions re having a reminder for each patient without stool guaiac test. QAC felt bringing lack of tests and F-U to attention of providers would result in less nonperformance. QAC to review proposal in greater detail and forward to IM for discussion. Dr. _____ to take it back to Surgery. Also to go back to OB as a rectal exam and stool guaiac has not been performed routinely on women over age 40. First 3 months of aggregate data showed non-performance.
9/75	Grant	Complete protocol criteria developed - e.g., a digital exam and stool guaiac test to be obtained at all Initial Health Assessments (IHA) and Periodic Health Reviews (PHR) of patients below age 40. This has emerged from study of IM and QAC. Audit can be fully automated except where there are explained deviations. Deviant records will be reviewed by member of IM group for explanations. Through use of reminders to do agreed upon screening procedures and F-U abnormalities, hope to achieve high level of compliance. Concurrent review will take place via before and after study and RCT (Randomized Clinical Trial).
9/75	Grant	Departments of OB and Surgery are preparing program that will complement the IM screening program. OB wishes to assure that women over 40 years will have pelvic and rectal exams with stool guaiac. Surgery preparing program that will determine how effectively it is dealing with abnormalities detected in screening program. These are all in preliminary stages.
10/30/75	Minutes	Proposal for screening endorsed by QAC. Program for colorectal cancer discussed second time. IM discussed this in detail. Attention directed to methodology of notification system re nonperformance, F-U of barium enema, etc.; more comments requested from OB and Surgery Departments.

IM = Internal Medicine
OB = Obstetrics
QAC = Quality Assurance Committee
F-U = Follow-up

Figure 11
QUALITY ASSURANCE ACTIVITIES
PAP SMEARS

DATE	SOURCE DOCUMENT	ACTIVITY
11/21/74	Minutes	Current state of pap tests reported to QAC re QA program in OB.
12/19/74	Minutes	Physician reported on project (to QAC) in his own practice re abnormal paps. Asked to discuss results (e.g., found small percentage of abnormal pap results have evidence of a repeat pap) to determine whether paps should be put into a broader proposal and brought back to QAC.
4/17/75	Minutes	Modifications have occurred since original proposal for F-U of patients with abnormal paps. Warrants further discussion with OB. Several suggestions and modifications made by QAC. Discussed anxiety of patients with abnormal paps. OB will review waiting time. Proposal will be reviewed again.
5/29/75	Minutes	Revision proposal submitted for pap analysis and F-U (to QAC). Major discussion on "Pap Smear - QA Protocol." Confusion as to time span and target population. Protocol will be resubmitted.
6/12/75	Minutes	Pap protocol rewritten to reflect QAC suggestions and reviewed again by QAC.
6/26/75	Minutes	Further discussion needed regarding women who haven't had paps or have gone without them for two years. Decided QAC not to develop policy for this. Raised issue of developing more focused efforts on patients with expected higher risks. To be referred to IM for reformulation and recommendations.
Mid 1975	Grant	Pap smear project to assure that abnormal paps are followed-up grew out of observations of one member of IM. Criteria development has required close cooperation of members of IM and OB and representatives from LCS. Progress delayed by introduction of colposcopy - a procedure to improve follow-up.
9/75	Grant	Details of scheduling patients for procedure still to be analyzed so that precise criteria have not yet been chosen. Preliminary criteria exist. Concurrent review will be conducted to survey all records of women with abnormal pap. Provider will be notified within designated time frames. Printouts of questionable records will be sent to designate members of IM or OB for final decision.

Figure 11 continued:

DATE	SOURCE DOCUMENT	ACTIVITY
9/75?	Grant	To document improved F-U, two types of studies will be conducted; before and after and RCT. The RCT control group will be audited on schedule but corrective action will be delayed. Results will be compared to determine if concurrent review resulted in better compliance with criteria.

pap smear = Papanicolaou test
 QA = Quality assurance
 QAC = Quality Assurance Committee
 OB = Obstetrics
 LCS = Laboratory of Computer Science
 RCT = Randomized Clinical Trial

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

HCHP provides multispecialty ambulatory services in outpatient health centers and inpatient services at various Harvard teaching hospitals in the Boston area. The hospitals serving Kenmore members are as follows:

<u>Hospital</u>	<u>Presenting Problem</u>
Boston Hospital for Women	Maternity, obstetrics and gynecological problems
Beth Israel Hospital	Adult and Psychiatric Care Problems
Childrens Hospital Medical Center	Pediatric Problems
Glenside Hospital	Psychiatric Care Problems
Peter Bent Brigham Hospital	Adult Care Problems
Massachusetts Eye and Ear Infirmary	ENT Problems

Services provided by HCHP consist of Internal Medicine, Pediatrics, Obstetrics and Gynecology, Surgical and Medical Specialties, Visual Services, Mental Health Services, Oral Surgery, Ear, Nose and Throat, Radiology, Lab Services, Complete Physical Examinations, Preventive Dentistry for Children, Immunizations, Allergy, Dermatology, Neurology, and Orthopedics.

HCHP employs 60 physicians, 34 at the Kenmore Center. The distribution of FTE (full time equivalent) staff by clinical specialty is as follows:

<u>Specialty</u>	<u>FTE</u>
Obstetrics and Gynecology	4.00
Internal Medicine	12.25
Psychiatry	3.93
Surgery	2.25
Pediatrics	4.50
Radiology	1.20
Orthopedics	0.45
Dermatology	0.45

Other services include counseling for acute psychiatric problems, Home Health Services, Extended and Intermediate Care Services, Emergency Care in and out of the service area, and Corrective Appliances.

The health centers operate from 8:30 a.m. to 5:00 p.m. Monday through Friday. The triage area is open with a limited staff weekdays until 9:00 p.m. and daily on weekends. Monday is the busiest day of the week. Off-hour care is provided by HCHP physicians on rotating shifts.

PATIENT POPULATION

The HCHP-Kenmore Center has approximately 550 daily visits by a patient population that is diverse and generally representative of the Boston area. During FY 1976 (10/75 - 9/76), the average membership was 55,250 (35,250 - Kenmore and 20,000 - Cambridge) most of whom are enrolled through employers' prepaid group coverage plans. The outreach program (Mission Hill - Parker Hill area) services a predominantly low-income population.

For the year ending June 30, 1974, the average number of encounters per person was 4.2. The average number of physician and nurse encounters per person was 2.04 and 0.89, respectively. Over 80% of the HCHP population lives within 8 to 10 miles of the health centers. The facilities are easily accessible by car and public transportation.

PROVIDER SELECTION PROCESS

A new member selects a physician-nurse team by scheduling an initial health assessment with the team of his choice. If a member is less than 16 years of age, a pediatrician and pediatric nurse practitioner are chosen. If a member is over 16 years of age, a specialist in Internal Medicine and an adult nurse practitioner are chosen. Orientation meetings are held to assist members with team selection.

REVENUE SOURCES

The plan operates through contracts with Massachusetts Blue Cross and several established commercial insurance carriers. Members may continue with the plan on a fee-for-service basis if they leave their place of employment or purchase a nongroup policy. Membership reimbursement for 3,000 low-income group members in the Mission Hill area is supplied by two different contracts, one with the Massachusetts Department of Public Health and one with the U.S. Public Health Service for community residents whose income places them just above Medicaid eligibility. The funding sources which support HCHP are distributed in the following way:

- 90.0% - prepaid capitation
- 3.3% - fee-for-service incurred from new members
- 2.7% - pharmacy fee
- 2.1% - dental fee
- 0.01% - grant

MEDICAL RECORDS SYSTEM - COSTAR

When an individual selects HCHP, the employer forwards copies of the completed application card to the designated insurance carrier, who forwards them to HCHP. The data are received and entered into COSTAR (the computer) via the CRT by a clerk in the enrollment department. A sequentially ordered medical record unit number is generated by the computer for each new enrollee.

Each time a face-to-face encounter between patient and provider takes place, an encounter form is completed. This encounter form is the data source for any and all compilation of patient information.

For a routine visit, the encounter form identifying data (e.g., patient name, unit no., date, site, type of visit and provider name) are filled in by clerical personnel before the provider sees the patient.

This information (key punched by clerical personnel) is transmitted through the keyboard of the CRT directly connected to the computer which also monitors the accuracy of the data. This use of check letters on codes reduces the chance of transcription error.

The provider completes the vital signs and the checklist relating to demographic information and has the option of including up to 180 characters of free text about a patient's personal and social background at the bottom of the encounter form. When extensive notation is required, the provider may dictate. This dictation may be retrieved in problem-linked fashion either in flow chart format or as part of the encounter form. The amount of dictation varies from department to department. For example, only 3% of the pediatric encounters entail dictation while the departments of Neurology and Orthopedics use dictation extensively. In Internal Medicine approximately one-third of the encounters had dictation averaging a length of 12 lines.

The status of all diagnoses and medications can be further specified by the type of indicator mark used (e.g., diagnoses are characterized as major, minor, presumptive, rule out, status post or inactive). Space is provided to enter diagnoses and medications that do not appear as precoded options. These are coded by record room personnel using a full-code directory (a structured list of problems, medications and tests which have been encountered in the past seven years of the Plan's existence).

For automatic monitoring of the patient's care, the provider checks the "follow-up important" box on the encounter form. If the visit does not occur, appropriate reports are generated.

Information is stored on random access disk tapes. The medical records room supplies a computer print-out of any or all parts of the medical record. Data display can take the form of an encounter form, flow chart or status report. The status report is the basic data display format. It is produced for all scheduled visits and is the most frequently used display option. It is designed to provide an index to and summary of the current medical status of the patient.

According to the COSTAR booklet, the use of check letters on codes not only reduces transcription error (less than 1%) but has resulted in better communication between providers and record room personnel and fewer problems with illegible handwriting. There is a technical problem, however, in that only the portion of the record that is precoded can be used for analysis. Therefore, there is no analysis of information contained in the free text or dictation.

COMPUTER FACILITIES

COSTAR is a highly sophisticated computer system which allows a great deal of information to be pulled and charted by a small number of personnel. It is an information and communication system designed to meet the needs of a pre-paid group practice with regard to the membership for new enrollments as well as terminations. The computer is capable of generating multiple copies of provider schedules and selected information regarding patients who are to be seen. Data may be retrieved by patient name, unit number or family number; the unit number is most commonly used. If only the name is known, it may be typed into the computer and a search of the data base will display all names matching or coming close to the entry.

The computer also provides all data required for the daily operation of plan management, budgeting and planning for future growth. To facilitate the billing process, COSTAR Supports computer to computer communication (via magnetic tape) which coordinates membership information on file at the Plan and its insurance carriers. In addition, it generates bills for fee-for-service patients and Medicare bills for patients over 65 years of age.

It has taken about 15 programmer years to develop COSTAR to its present status. The computer facility at LCS, occupying 8,000 square feet, operates five similar machines (one is available for back-up). COSTAR is a large collection of computer programs written in MUMPS. The system is supported by a PDP-15 computer system (48K 18-bit words of core, 260 million characters of on-line disk storage supporting 30 simultaneous users). In addition to the system, there are more than 100 printers and cathode-ray terminals at LCS.

Remote printing and video terminals are used at HCHP-Kenmore. Two KSR-33 teletypes are located in the medical record room. Two ITT video terminals and 14 Infoton video terminals are also located in the record room, laboratory, Departments of Internal Medicine, Medical Specialty, Pediatrics, Surgery, OB-GYN, Triage, administration and the main desk.

A provider Acceptability Study conducted at the Kenmore Center indicated 90% of physicians preferred the computerized system to a manual one.

PHYSICAL LAYOUT

The Kenmore Center occupies four and one-half floors (approximately 45,000 sq. ft.) of a 12-story apartment building in the Kenmore Square section of Boston.

HCHP has 13 waiting areas, approximately 55 examination rooms, approximately 35 physician offices, a diagnostic X-ray department with two equipped rooms, a limited diagnostic laboratory, two minor operating rooms, a pharmacy, a six-chair dental suite, a computer area, a test data center and a parking garage. In addition, a supervised playroom is available for children.

AFFILIATIONS

HCHP has several affiliations with other institutions:

1. HCHP staff has a contract with the Laboratory of Computer Science for the management of the computerized medical records.
2. HCHP staff members have joint appointments at the Harvard Medical School.
3. HCHP staff conducts various research projects with staff at the Harvard Center for Community Health and Medical Care.
4. Staff members have various responsibilities for teaching and providing medical care at Boston Hospital for Women, Beth Israel Hospital, Cambridge Hospital, Children's Hospital Medical Center and Peter Bent Brigham Hospital.

The HCHP quality assurance program represents a high level of variable activity, with more activity actually going on than was documented. Although it is difficult to describe a systematic administrative or methodological framework for the activities, the major clinical departments (through representatives) seemed very active in quality assurance projects and studies. The QAC operational role seems to be one of central coordination.

SECTION IV

HCMS STUDY INFORMATION

HCHP agreed to participate in the study via a telephone conversation on November 3, 1975. Initial documentation pertaining to quality assurance activities was received on November 6, 1975. A detailed set of Quality Assurance Committee minutes was received on November 28, 1975.

HCMS staff visited the Harvard Community Health Plan (HCHP) on February 3, 1976. The documentation received and compiled prior to the site visit is as follows:

1. Part II-Completed Data Collection Instrument
2. HCHP Handbook
3. HCHP Organizational Chart
4. Membership Report (October 20, 1975)
5. Provider Encounter Report by Specialty for each Center (October, 1975)
6. Handbook describing the development and structure of COSTAR
7. Research grant application to Public Health Services for the Implementation of a Computer-Based Ambulatory Quality Assurance Program
8. Entire set of Quality Assurance Committee meeting minutes
9. Operating statement (summary page) for the fiscal year ending September 9, 1975
10. HCHP booklet providing extensive data for the new planned facilities

The site visit was conducted on February 3, 1976. Site investigators could arrange visits with only two HCHP personnel. The interviews were conducted jointly, lasting approximately five hours. Those interviewed were the Medical Director of HCHP and the HCHP Physician and Principal Investigator of the HCHP quality assurance grant submitted to the Public Health Service.

The Medical Director is responsible for monitoring the quality of medical services in the Plan. He partly fulfills this responsibility by insuring that quality assurance activities are carried out according to sound research methods and in accordance with the goals and desires of the entire medical staff. The HCHP Physician is primarily responsible for implementing the research activities in quality assurance. He will assume chairmanship of the QAC in FY 1977.

The topics discussed in the interview were the following:

1. The development of quality assurance activities
2. External and internal constraints in the development
3. Functions of the Quality Assurance Committee
4. Quality assurance activities in which the greatest amounts of time and energy are expended
5. COSTAR decisions
6. Organization and staff functions at HCHP
7. Specific quality assurance activities

8. Advantages and disadvantages in certain quality assurance methods
9. Philosophy of the participants with regard to the QAP
10. Management issues in implementing quality assurance activities

GROUP HEALTH ASSOCIATION, INC.

District of Columbia

SECTION I

I N T R O D U C T I O N

Group Health Association, Inc. (GHA) is a prepaid multispecialty health plan which provides services to approximately 100,000 enrollees. Located in the District of Columbia, the plan offers services in four ambulatory facilities through approximately 100 physician staff members and contracts with Doctors Hospital for provision of inpatient services.

In operation since the 1930's, GHA provides services to a large group of subscribers, including a sizeable contingent of government employees. An elected Board of Trustees establishes policy and oversees GHA operations. As a result of recent changes, the medical director reports to the executive director who in turn reports directly to the Board. Several committees established by the Trustees review enrollee reports and set policy for administrative personnel. The executive director is responsible for all administrative concerns, while the medical director is responsible for all medical staff concerns, referral cases and ambulatory activities.

The Medical Council formally established a Quality of Care Committee (QCC) in 1973. The medical director and the QCC chairman play key roles in the activities of the committee, and interact closely with the person who supplies staff support to the committee's activities.

GHA was included in the study because of the operational status of some of their quality assurance activities.

The GHA formal quality assurance program (QAP) consists of audits using both implicit and explicit criteria. Another part of the program requires formal terms of employment for physicians regarding educational standards, quality of care, and a probationary period of employment.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section describes GHA's quality assurance activities in terms of developmental background and documented plans, and operational program elements. Information presented here is based on GHA documents outlining specific quality of care issues and the approach to administration of a quality assurance program.

BACKGROUND AND FORMALLY PLANNED ACTIVITIES

Since its establishment in the 1930's, GHA's primary goal has been to deliver high quality care at reasonable cost. To do so, three basic procedures have been established:

1. Consumer input through the Board of Trustees, which has been established by: (a) Election of Board members by GHA members, (b) Member Advisory Committee, (c) Active resolutions from members.
2. A formal screening process for hiring physicians. First, there are standards specifying educational requirements for physicians in each department at GHA. Second, the prospective medical staff member is interviewed by the Medical Director, the Chairman of the Department the physician is applying to work in, and by other staff physicians. Finally, the new physician's work and relationships with staff are reviewed during the first 18 months by a senior department member and the Medical Director. If the new physician does not meet designated standards, employment is terminated.
3. The group practice form of organization helps establish high quality care because medical records are shared, resulting in an informal peer review. Because specialists are available in the same facilities as the generalists, there is more opportunity for sharing knowledge through consultation. Since GHA does not operate fee-for-service, there is no danger of "losing" clientele by referral to specialists.

The Quality of Care Committee (QCC) was established, according to documents, to provide a formal administrative focus for quality assurance activities. The committee is designed to discuss "significant issues raised in the reviews" and to decide if and when some type of feedback action for a specific provider is necessary.

After the QCC was established in 1973, a formal audit review process was developed:

1. To provide physicians with educational feedback from peers on the quality of care; and

2. To identify and correct problems which interfere with effective delivery of high quality health care.

Documents note that each full-time member of the medical staff is involved in the peer review process. Each receives one medical chart to audit every two weeks. QCC meetings are open to all GHA physicians.

AUDIT REVIEW PROCESS

Documents provided a description of specific activities within the audit review process. This type of QAP focuses on the audit of medical services processes. The specific steps are listed below.

1. Cases for review are randomly selected by such indicators as deaths, regular appointments in various departments, referrals to other specialties, etc.
2. The goal is to review 40 charts every two weeks using physician reviewers. Reviewing physicians' reports are anonymous. Only the professional assistant who pulls the case knows to whom it is sent.
3. The review is typed and sent with the chart to the primary physician. If there is no primary physician, the review is sent to the physician who last saw the patient.
4. The primary physician comments on the same sheet as the reviewer, responding to reviewer comments, and clarifying elements of care unrecorded in the chart or misinterpreted by the reviewer.
5. Completed reviews are sent to a QCC member in batches of 15. The member summarizes trends, makes suggestions and reports findings to the committee.
6. The QCC, comprised of both physicians and nonphysicians, discusses significant issues raised in the reviews. They suggest constructive action when necessary.
7. Minutes are taken at the meeting, typed, and approved by the chairman of the committee.
8. The minutes of each meeting are sent to all full-time physicians and to regular part-time physicians in all specialties.

Documents used by study staff to ascertain planned quality assurance activities also reflected some results of QCC activities. The particular method(s) employed to gain reported results were not described; however, some results were described as follows:

1. Asked for and received from the Department of Radiology reports dealing with radiation safety procedures for members obtaining X-rays; this was also done with the dental test
2. Investigated the merits of IVPs in hypertension that can be controlled by drugs
3. Investigated problems relating to precautionary measures for immunization of pregnant women

4. Secured legal advice on how long during night hours patients in the emergency visit center may be kept, in the District, as well as in Maryland and Virginia
5. Reviewed proper usage of Vitamin B12
6. Invited other physicians to discuss specific problems
7. Coordinated QCC with the Laboratory Committee, Medical Records Committee and administrative personnel who relate to problems of quality of patient care, e.g., Medical Records Department

The documents further describe recurring quality assurance issues identified by GHA personnel, including:

1. Inadequate annotation of records on face sheets, particularly important diagnoses
2. Lack of hospital data in the medical record
3. Need to reeducate patients who continually use the Minor Injury Unit (MIU) instead of primary physicians
4. Need for improved legibility of notes
5. Need for carefully documented notes for legal purposes, as well as quality of care
6. Need for follow-up when patient makes no attempt to continue care, particularly true of the parent in Pediatrics
7. Need for prompt reporting of important abnormal findings from the X-ray Department and the Laboratory Department to the physician
8. Need for complete history sheet on all family members
9. Need for growth and development charts in all pediatric records
10. Need to assure records are edited properly for appropriate patient care
11. Lack of communication between departments

According to documentation, GHA's philosophy of health care delivery is based "on the concepts of quality care, maintained standards for the qualifications of personnel, and established mechanisms so that both providers and consumers have input to the identification and resolution of problems." GHA hopes to assure quality of care more effectively by "implementing a formalized system of linkages between assessment, standard setting, problem resolution and evaluation of effects on care and outcome."

OPERATIONAL ACTIVITIES

Although the documents outlined a general quality assurance program, the present (1975) operational components of the program were ascertained during site interviews and review of documents reflecting its operations.

This description of operational activities came from several primary sources: (a) 1975 Annual Report (quality assurance program), (b) 1976 Quarterly Report (January to March, 1976), and (c) three sets of QCC minutes. Study staff received minutes from three Quality of Care Committee meetings held in February and March of 1976, as well as the QCC 1976 Quarterly Report.

The chairman of the QCC plays a major role in decision making. He takes a strong interest in deciding what to review, the type of review, and

subsequent action based on review. He interacts with medical staff and directs administrative personnel in determining what issues will be examined in the context of the QAP. All quality assurance decisions emanate from the medical staff, although the administrative side has input in terms of resource commitment and support of QAP activities. The executive director has no real interface with the program.

Significant support comes from the Medical Records Department which is in charge of data gathering procedures for the QAP. According to a member of the Medical Records Department, funding for the program is internalized in the medical records budget. The executive director reported, however, that there is no line-item funding for the QAP, although costs are carried in the Medical Records Department, which budgets the cost of pulling charts and the professional assistant for quality of care. There is also support from physician members of the medical staff who conduct medical review assessments, especially in the departments of Pediatrics, Obstetrics and Gynecology and Internal Medicine. Physician members of the QCC are invited to serve on the committee; meetings are held during the lunch hour to minimize physician time away from patient care.

The QCC accepts input from various sources. One staff member reported that if a physician (usually department chief) requests an item be examined, there is usually 100% follow-through by the committee.

The quality assessment method focuses on examination of a particular patient-physician encounter, although QCC does not try to define practice by individual physicians, but focuses on general problems affecting the quality of care at GHA.

Specific Audit Activities

Items for review are selected by the medical director or the QCC after particular indicators for examining charts are selected, or when there is a problem which the medical director or the committee wants to examine. After a problem has been determined and indicators chosen, a sample of charts is pulled based on those indicators.

There are no systematic sampling procedures. The QCC Chairman sets a sample size according to what he thinks would yield reliable data. The medical record is the data source for all quality assurance audits.

The professional assistant for quality of care examines approximately 40 charts for any particular audit. The charts are pulled by medical record room personnel and given to the professional assistant. She audits each chart for 10 elements prior to studying the same chart for provider review:

1. Medical History sheet in chart?
2. Problem/Diagnosis sheet in chart?
3. Diagnoses entered on Problem/Diagnosis sheet?
4. Is there an Anthropometric Chart (for pediatric charts)?
5. Is there a primary physician?
6. Used MIU almost exclusively during the past year?

7. Is patient being seen regularly in nonprimary care specialty?
8. Date of enrollment with GHA?
9. Has blood pressure been recorded in the past 3 years?
10. Has a pap test been done in the past 2 years (for female patients over age 25)?

The professional assistant has full responsibility for data collection procedures and handles procedural details that include the following:

1. Notes what sample size must be pulled
2. Conducts a clerical audit of charts
3. Forwards medical records for physician review and insures that the physician conducts the review
4. Compiles results from both reviews

She has certain criteria from which to select based on the indicator or problem chosen. For review, the criteria for evaluation of the records are developed by the QCC (sometimes input from the clinic is used to develop specific criteria) to be used in two audit areas:

1. For the review of charts by both professional and nonprofessional personnel
2. For a specific problem or indicator chosen

After charts are checked for the ten elements listed above, they are sent to a physician who reviews the chart and comments generally, using his professional judgment to note both excellent and deficient care. The eight questions the reviewing physician must answer are:

1. Were all health problems suggested by data in the record properly identified?
2. Were the medical data in the chart (history, physical findings, lab tests, etc.) adequate to support logical clinical decision making?
3. Was the logic of care sound, i.e., did the clinical process "make sense" to the auditor and were the diagnostic and therapeutic actions reasonable, necessary, timely and thorough?
4. Was follow-through adequate regarding all important health problems?
5. Was prompt action given to all important problems?
6. Did the patient benefit from the care (i.e., were satisfactory outcomes achieved)? If not, why?
7. Additional comments
8. If there is no primary physician, does the record suggest current health care needs which are not being taken care of? (If "yes" is checked, staff will arrange assignment to and follow-up by a primary physician.)

These eight questions are followed by "General Comments on Record Itself":

1. Is chart in order and complete?
2. Legible?

After the physician completes the review, the medical record is forwarded to the professional assistant. The assistant then types the review comments, attaching them to the medical record, and sends both to the primary physician for clarification of elements of care that may not have been recorded and figured in the reviewing physician's assessment. The primary physician is also required to note whether any patients must be notified of problems revealed during the review. The physician returns the record to the professional assistant.

Prior to each QCC meeting, members are presented with 15 to 20 reviews to study. They analyze the reviewing comments and report their findings to the committee as a whole at the regular biweekly meeting. The committee then discusses the reviews focusing on issues to be addressed. From review findings, the committee may decide to take action based on the committee's consensus. The responsibility to take action based on the evaluation rests with the department head, the medical director, and the Quality of Care Committee. Minutes of the meetings are recorded, typed, and distributed to all regular GHA staff physicians.

According to interview information, if a problem with a particular physician is discovered, some administrative action based on peer audits reviewed by the Quality of Care Committee is usually necessary to inform that physician he has not performed satisfactorily. The committee discusses the problem, then takes it to the department head for feedback to the physician. The committee does not have a direct line of communication or a direct responsibility for feedback to the audited physician. The only systematic format for feedback is sending the review to the primary physician before it is sent to the committee.

The 1975 Annual Report documented 18 QCC meetings between January and December, 1975. Reviews of 391 medical records were conducted using the following indicators:

1. Hospitalization
2. Adult medical visits
3. Pediatric visits
4. OB-GYN visits
5. Deaths
6. Special study
7. Request of staff physician

This report did not specify any results of QCC actions or physician reviews.

The Quarterly Report (January to March, 1976) indicated 105 reviews were conducted; major QCC comments related to illegibility of handwriting, lack of a primary physician, and technical chart deficiencies (lack of a problem sheet, hospital discharge summary, etc.). Committee members present results of reviews done by themselves or a non-QCC staff member, and their assessments of each case. In general, comments did not reveal serious deficiencies in care. The minutes also indicate that when problems were identified in primary physician service, the physician was contacted regarding review results. The QCC member reported that either the primary physician had taken some action or action had been recommended through another party, usually the department head.

QCC members presented approximately 15 cases per meeting and some type of feedback activity was mentioned for most cases.

Special Studies

The QCC not only reviewed charts, but also analyzed data from three special studies:

1. There was a follow-up on 150 blood sugar tests selected randomly from the lab files. Results were:
 - a. One hundred patients had elevated blood sugar. Ninety-seven were known to be diabetic; ninety-four were receiving therapy; one was a new diagnosis; one had another diagnosis. Only one was not a diabetic and no explanation for the elevated blood sugar was recorded.
 - b. In 10 hospital patients, only one was a known diabetic. Follow-up showed elevated blood sugar in the other nine was due to use of intravenous fluids.
2. "A review was conducted of the yield [in terms of significant comments by reviewer and/or primary physician] by various indicators used to select 206 charts for review. In general, from 22% to 37% of charts reviewed contained significant comments with pediatric and 'other' indicators having the highest yield. In the 'other' category, as might be expected, 57% of those selected for review because of death were found to have significant comments. Currently, the committee is investigating the use of specific diagnosis (e.g., alcoholism) as an indicator to assess the usefulness of this approach rather than random selection."
3. The third study dealt with blood pressure readings. Results: 77% had had blood pressure recorded in the past two years. Based on this finding, the medical director, with committee approval, made the following recommendations:
 - a. It is the nursing staff's responsibility to take blood pressure readings routinely for all patients who come in for appointments if they have not had one in the past year.
 - b. Regular announcements should be published in the GHA News encouraging members to have blood pressure measured annually, even if they do not have occasion to attend GHA for medical services.

Other quality of care meetings have focused on issues dealing with the development of new objectives and directions for the committee, as follows:

1. The committee discussed assessing the quality of care of GHA members at a particular hospital.
2. The committee would like to see review procedures occurring on individual departmental levels to assess the quality of care in each department. If that were to occur, the QCC would then act as a

coordinator among the various departments. Primary responsibility of the QCC would be special studies and quality of care issues that concern GHA as a whole.

3. The committee discussed other procedures for quality assurance, such as the tracer method and the use of diagnoses as indicators for chart reviews.

Staff for Quality Assurance

The Quality of Care Committee is comprised of the medical director, the chairman (selected by the Medical Council), representatives from various departments (these have included Internal Medicine, Dermatology, Psychiatry, Urology, Pediatrics, OB-GYN), a registered nurse, the director of the Medical Records Department, and one of the assistants to the medical director. Physicians from outlying centers can participate in meetings by telephone network. This committee is purely a reviewing committee that makes suggestions and recommendations to the medical staff for improving the quality of care.

Besides the professional assistant for Quality of Care, 20 people in the medical records room play a part in the QAP. They are responsible for filing and retrieval, and have no special training for QAP; the number of records they pull for review is a very small part of their total workload.

ADDITIONAL COMMENTS

To assure higher quality of care, GHA has several plans:

1. To implement a Medical Care Information System (MCIS) based on encounter forms with detailed information regarding the patient's problem and care. When this system is in complete operation, it will make the following activities possible:
 - a. Selecting charts for the audit of care by specific diagnosis
 - b. Producing medical problem lists for the medical record and for patients seen in locations where the medical record is available
 - c. Notifying patients of recalled pharmaceutical products
 - d. Identifying potential adverse drug interactions
2. To use qualified specialists outside GHA to audit the small departments such as Ophthalmology and Surgery.
3. To examine and restructure the present audit process in order to establish a more formal link between assessing the quality of care and the problem solving activities. This link would lead to the assurance of quality, and would accomplish three things:
 - a. The departments would have more responsibility for clinical issues
 - b. Interdepartmental issues would be handled by a central committee
 - c. Nonphysician clerical personnel would be used more efficiently in the auditing process

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

GHA, Inc., is a prepaid multispecialty practice serving an enrollee population of more than 100,000 with a provider staff of approximately 100 physicians.

GHA contracts with Doctors Hospital for most inpatient services. Provisions in the plan allow for hospitalization of GHA patients requiring tertiary care at other inpatient facilities in the metropolitan area, including university-affiliated hospitals and the major pediatric hospital in the District of Columbia.

The Board of Trustees is responsible for all GHA operations. The Board operates through numerous committees (e.g., Claims, Executive, Membership, etc.) which receive information from enrollees. The committees report to the trustees. The executive and medical directors also report to the trustees, as well as interacting with committees.

GHA provides preventive, diagnostic and therapeutic care, primarily in GHA centers and in hospitals; home calls are made when necessary. Services include:

1. Diagnosis and treatment of illness or injury
2. Checkups, well-baby care, and immunizations
3. Surgery, specialist care, physical therapy
4. Eye care (includes examinations for eye glasses and examinations for prescription, but not fitting, contact lenses)
5. Diagnostic and lab tests, X-ray tests, and treatments
6. Visiting nurse, ambulance and outpatient hospital services when authorized by a GHA doctor
7. Immunizations for: rubella, polio, measles, smallpox, cholera, typhus, influenza, cold, mumps, diphtheria, whooping cough, tetanus and typhoid
8. Surgery for congenital defects of children born to GHA members

Maternity, mental illness, out-of-service-area, and hospital benefits are also offered.

The GHA medical record is based on a traditional chronologically-ordered system. The record includes registration information, clinical progress notes, laboratory data, X-ray and medication information. Each GHA member has a medical record, kept in the facility where he chooses to seek his primary care. An additional feature contributing to the quality of care is the quality of the record, which is promoted by a central dictation system physicians use to complete progress notes in the medical record.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

Staff contacted GHA through correspondence dated October 20, 1975. GHA agreed to participate in a telephone discussion on November 14, 1975. Initial information, received December 5, 1975, is listed below:

1. General description of the Quality of Care Program and the Quality of Care Committee (March 25, 1974)
2. Flow chart of quality of care process at GHA (no date)
3. Presentation made to Montgomery County Health Planning Advisory Board on March 17, 1975, entitled "Quality of Care Assurance at GHA"
4. The Quality of Care Review Summary which is the Basic Audit Abstracting Sheet (no date)
5. Report on Blood Pressure Study (1976)
6. Quality of Care Quarterly Report (1/3/76)
7. 1975 Annual Report
8. Minutes of Quality of Care Committee meetings (1976)
9. Bylaws of GHA, Inc. (January 1, 1964)
10. GHA, Inc., Board Regulations (Pursuant to GHA Bylaws Article VI, Section E) (January 1, 1970)
11. GHA, Inc., Schedule of Services, payment plans and subscription charges for individual members (plan revisions effective 1/1/75)
12. General description of GHA Comprehensive Group-Practice Plan, 1976
13. Newsletter "GHA News" Annual Report Issue, April-May, 1975, Vol. XXXVI, No. 2

The documentation provided a general description of the QAP and future goals; however, there was little documentation of specific quality assurance methods within the present program operations. Information regarding these activities was gained from two sources primarily: (a) onsite interviews, (b) review of Quality of Care Committee (QCC) minutes. Site visits were conducted on January 29 and April 13, 1976, at which time interviews were conducted with the following personnel:

1. Medical Director
2. Professional Assistant for Quality Assurance
3. Director of Medical Records
4. Member of Quality of Care Committee and OB-GYN Department
5. Executive Director, GHA

Interviews with the first three were audio recorded.

The medical director plays a key role in the direction and activity level of the Quality of Care Committee (QCC). The professional assistant is responsible for all data collection and compilation for quality assurance. She works with medical record room personnel, and often consults with the supervisor of the department.

KAISER PERMANENTE MEDICAL CARE PROGRAM OF NORTHERN CALIFORNIA

Oakland, California

SECTION I

I N T R O D U C T I O N

The Kaiser Permanente Medical Care Program of Northern California is a large prepaid medical delivery system offering inpatient and outpatient services to an enrolled subscriber population. The medical care program is divided into four basic organizations: (a) the Kaiser Foundation Health Plan, (b) Kaiser Foundation Hospitals, (c) the Permanente Medical Group, and (d) Permanente Services, Inc. The key contractual relationships are those of the Kaiser Health Plan with the Permanente Medical Group and Kaiser Foundation Hospitals. The Northern California region includes 12 hospitals, each with an affiliated ambulatory clinic. There are also four detached ambulatory clinics, each with an organizational tie to a hospital.

The Kaiser program was included in the study because of experience with developing and implementing quality assurance methods. A very specific approach and methodology have been used in all Kaiser facilities. This description focuses on general program development rather than any one facility's activities.

The quality assurance program, titled Comprehensive Quality Assurance System (CQAS), was first applied in 1969 in one 24-man department at one facility and went into operation September, 1973, in all facilities. Within each clinic the program has undergone various changes and levels of activity in the subsequent two-and-a-half years.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The CQAS program developed from two main sources:

1. The search for a method to identify true educational needs recognized by both the Professional Staff and Administration
2. The interest of the Permanente Medical Group (PMG), in establishing a sound methodological approach to a formal quality assurance program which addresses problem areas and medical issues, not just utilization or peer review

This description will concentrate on drawing distinctions between the program's elements as outlined in documents, and the operational status of the program. The CQAS program is designed to be a systematic approach to quality assurance which should be followed in a specific implementation format. An important aspect of the Kaiser program is the relationship between the office of the coordinator of education and the CQAS committees of the various facilities. As described by Kaiser personnel, the cornerstone of the CQAS program is the flexibility retained by each facility in implementing their programs. The Permanente Medical Group (the physician partnership) officially endorses the program and lends substantial support to it in all facilities. Kaiser Foundation Hospitals officially endorses and funds the program. Total organizational support is evident from the fact that no outside funding has been employed to support the program. All costs are included as regular operating budget items. The importance of the coordinator of education's personal commitment and influence cannot be underestimated, as the developer of the approach and the person who initially placed the CQAS program in all 12 facilities. The generation of interest and support of the program among physicians-in-chief of facilities and leaders in the PMG was emphasized as a critical step.

The most pertinent facts regarding the 12 facilities are:

1. Each medical center delivers both inpatient and outpatient services, under one facility administration
2. Clinical departments within the facilities each have a physician department head who reports to the physician-in-chief of the facility
3. Each administrator reports directly to the regional administrator of Kaiser Foundation Hospitals who in turn reports both to the regional manager and to the executive director of PMG
4. Each administrator interacts with the physician-in-chief of the same center in administering daily operations
5. Each physician-in-chief reports directly to the executive director of the Permanente Medical Group

The office of the coordinator of education has responsibility for Kaiser's quality assurance program. Programs within each facility were initiated and are monitored from his office.

FORMALLY PLANNED ACTIVITY

This section describes the formal outline of the CQAS program. The following section (Operational Activities) will describe certain operational items, though generally the data indicate that the CQAS program is being implemented as planned. The program can be divided into several key areas

1. Definition of goals and objectives
2. Organization of the program
3. Functions of CQAS committee
4. Selection of medical records for problem identification purposes
5. Identification of problems by audit and other mechanisms
6. Establishment of audit standards to measure problem
7. Design of and performance of clerical data collecting procedure
8. Determination of corrective actions based on review
9. Report to the Board of Kaiser Foundation Hospitals and Executive Committee of Permanente Medical Group

The goals and objectives of the program are well-defined; emphasis is on accomplishment of these goals by each CQAS committee. The importance of CQAS is to show improvement measured by the number of problems identified, standards established, solutions proposed, and actions taken. The documented goals and objectives include:

1. Assurance of high quality health care. This involves:
 - a. The identification of those elements of care being performed suboptimally
 - b. Improved performance of those elements
 - c. Measurement and documentation of changes in the performance of these elements of care after improvement activities are instituted

These issues are similar to administrative control procedures which measure results of system modifications and improvement activities.

2. Cost containment. It is assumed by the CQAS program that better quality care is in the long run less expensive care. Decrease in the cost of care with no decrease in quality is a worthwhile pursuit, not only economically, but also because unnecessarily expensive care diverts resources from more pressing health care needs and can interfere with proper utilization of available resources.
3. Satisfaction of legislative and accreditation requirements. Since it is the intent of a variety of government and voluntary agencies to validate quality of care and quality assurance procedures in health delivery systems, documentation necessary for responsible internal administration of quality assessment should, if systematically performed, satisfy external quality assurance accreditation. CQAS documents note that quality

assurance programs that aim to achieve external accreditation are doomed to fail in improving quality because tokenism, avoidance behavior, and "busy work" will thwart their intention.

These three goals are also integrated into the impetus for CQAS program development - the establishment of educational needs for providers, measurement of success of educational activities and quantitative measures of certain elements of medical care. Because CQAS originated within the coordinator of education's office, it is based on the educational and improvement value of certain quality measurement procedures.

CQAS goals and objectives were determined during the development of the CQAS program elements and the initial implementation of the CQAS methodology in 1969 within one department. During this time, the procedure was primarily that of problem identification in an anonymous, nonpunitive manner with proper publication of problems to staff. A revision took place after this first implementation of CQAS process was analyzed; documentation indicates there were two major flaws:

1. Nonprofessional help was not utilized, and physicians were spending time in routine tasks
2. Objective measures of progress and improvement were not available, thus true progress could not be monitored

Kaiser documentation indicated that, in 1972, the program was reported to be "running smoothly." To assess the review process, "physicians from other medical centers evaluated the procedure by reviewing and comparing medical record entries for a sample of patients." These records were chosen from a sample of patients seen in fall 1969 and 1971 (the beginning of the program and two years later). A specific visit in each year was reviewed and compared. The reviewing physicians were asked to evaluate the two visits and approximate data as "better," "same" or "worse," using unanimity as a condition for the first and last. It was clear that improvement occurred in many aspects of care, but this comparative review affected the CQAS review process as follows:

1. Reviewing physicians had to make value judgments on care for noncomparable elements
2. Review process could not yield quantitative evaluation
3. Review process was overly dependent on physician time
4. Problems that arose could not be addressed in a systematic fashion

Kaiser documentation notes the most significant conclusion of these events was the necessity for developing criteria or standards for elements of care to be reviewed. In September, 1973, the present elements of the CQAS program were implemented. These elements were:

1. Problem identification
2. Setting standards for problems identified
3. Screening by clerical personnel and validation of variations by professionals
4. Recommendations for corrective action and implementation of action

5. Remeasurement of compliance with same or modified standard
6. Reporting of results to top management
7. Documentation of each step to insure feedback loop

The goals and objectives of Kaiser CQAS were not revised, but the process for measuring and improving care was changed. The documentation devotes over 19 pages to conceptual background and philosophy behind specific CQAS program elements.

Organization of Program and CQAS Committees

The key person in implementing the CQAS methodology in each facility is the CQAS chairperson (a physician). The documentation notes that the chairperson should work closely with the administrative coordinator of the CQAS committee.

The coordinator (or at times the chairperson) is responsible for several key areas:

1. Budget of the CQAS program
2. Coordination of various data collection efforts
3. Clerical personnel
4. Meetings for standard setting and problem solving

Each medical center has a CQAS Committee which includes the chief executive physician and chief lay administrator, the chief of education, the nursing director, the medical records librarian and physician representatives from major clinic departments. This committee's goal is to provide overall (clinic- and hospital-wide) direction for the review activities in several areas:

1. To receive information on interdisciplinary problems identified for review and standards established by departments for measurement
2. To refer problems to appropriate department for action
3. To determine the priority of measurement for standards
4. To set standards which deal with an entire facility
5. To affirm or modify data collection proposals, as well as adding modifications or support for specific corrective activities
6. To keep medical center personnel informed

In addition to the CQAS committee, there are separate clinical department peer review committees. The importance of departmental committees centers on the problem identification process which is the critical starting point for the entire CQAS methodology. Each departmental committee, according to documents, should conduct several activities:

1. Identify problems and receive information from external sources about problems
2. Establish standards
3. Transmit to medical center CQAS Committee information on clinical review of variations found in the CQAS clerical data collection results, including specific problems found in own and other departments
4. Recommend corrective activities for own department

The CQAS coordinator works with all committees, but is responsible to the medical center CQAS Committee. The coordinator supervises the clerical person who collects data for standards and compiles results. He must also interact with medical record room personnel who pull charts for CQAS use.

Medical Records Selection for Problem Identification

The documents identify "microsampling" as the major method for problem identification although problems from committees and complaints from any other sources are similarly directed to the CQAS Committee. In microsampling, medical records are examined to reveal problems and are usually chosen by selecting a sample of patients who were seen at certain hours of the day and on certain days of the week, or from other activity logs. The records are selected after a four- to six-week time lapse to allow all laboratory work and follow up visits to be recorded. This problem identification and selection method insures that issues addressing most types of care and most providers will be revealed.

Microsampling means that a relatively small number of medical records are reviewed for problem identification; documents note 20 records per department every two months reveals a greater number of issues than can possibly be corrected with resources available.

A physician (or other appropriate professional) performs problem identification review using various formats. Documentation notes "experienced reviewers will prefer the free format of a blank sheet of paper," although other formats can be used. Documentation outlines several general elements which should be considered during the review including:

1. An index visit is reviewed in its entirety (index means the specific visit that resulted in the selection of the record)
2. The reviewer searches for "what is wrong, not who is wrong"
3. Reviewer should note "anything in the record which reveals or will lead to poor care"
4. After index visit is reviewed, other visits are scanned to determine if there are internal inconsistencies in care of the patient
5. Poor care and unnecessarily expensive care

Once this initial review is completed, two physicians exchange the record (with the first reviewer's comments). A second review is conducted to catch undetected errors and to corroborate the first reviewer's comments. These findings are presented to the departmental CQAS Committee, which must unanimously agree on the findings. Findings are then presented to departmental staff for comment, discussion, and criteria or standard setting when appropriate. At this point in the process, the identified problems may be addressed by other procedures besides standard setting and measurement. If the problem can be solved through means such as education, system changes, etc., it may be done by the department whether the problem is compatible with setting a standard or not.

Standard Setting for Performance Measurement

While the problem identification phase is designed to discover problems (what is wrong), the standard setting phase is designed to state, relative to a specific problem, what should be done (what is right). Documents suggest standards are needed for two purposes:

1. To save professional time by using clerical personnel to measure performance once a problem has been detected
2. To evaluate corrective measures

Once the department or the CQAS Medical Center Committee decides a problem is suitable for correction through the standard-setting mode, the departmental committees can then begin to develop a standard for a specific problem with help as needed from the Medical Center CQAS Committee. The documentation discusses several different methods for establishing standards. A major issue is that the responsible department must create its own standards. The department members must agree that the standards reflect what might be done in a specific medical care situation. A significant amount of implicit professional judgment is required for developing each standard, which is an important aspect of the CQAS method. Further, to cultivate commitment to CQAS, standards must be developed by the group of providers who are the subject of measurement.

The documentation does not note any systematic format to follow in standard development, other than that standards reflect "what is right" for a particular care situation. Documentation delineates several characteristics standards should have:

1. Should be easily measurable, consisting of a simple statement relative to a specific problem
2. Must be easily understandable by the clerical personnel so data collection will be uniform and reliable
3. Must state a desired performance under a specific set of circumstances
4. Should relate to a consequential, solvable, and relatively prevalent problem

Standard development is designed to allow maximum flexibility for the departments and medical centers as they develop measurable statements dealing with medical care. These standards, which reflect a brief statement about professional behavior, are submitted to the medical center CQAS Committee which ranks them for measurement. Departments do not have separate employees to perform data collection; it is done throughout the medical center.

Data Collection for Measurement and Recording of Performance

According to documentation, once standard development is accomplished, "the first two phases of professional activity" are complete, and activity centers on clerical data collection and measurement. Administrative functions are recorded on worksheets, which state the standard and specific instructions for measuring performance related to the standards. Worksheet information also includes the number of variations of performance from the standard, professional

validation of variations, recommendations (if made) for corrective action and, most important, the evidence that recommendations have been implemented. Worksheets are handled by the CQAS coordinator and document the status of audit process in four phases:

1. Statement of standard and method of data collection and measurement
2. Clerical function reports, presenting results of audits and measurement
3. Professional review and analysis of specific cases of variation
4. Analysis, conclusion, action recommended and taken

The worksheets are not only used to document activities through the review process, but also serve as procedural guides throughout the entire process.

Worksheet I, which includes statement of the standard, must have several other data elements:

1. Medical center name
2. Standard number
3. The date of CQAS meeting when the standard was first formulated
4. Index words, which identify the standard for library purposes
5. Source of standard initiation, usually a department
6. Name of clerical person responsible for measuring standard and the date referred to the clerical person for measurement
7. Whether any modification of standards was done in course of time, from audit to audit
8. Interpretation of terms
9. Authority for standard setting (usually a department)
10. Specific instruction for selecting type of data determined necessary for measurement (place, time)
11. Source of data (progress notes, nurse's notes, diagnosis confirmation, etc.)
12. The quantity of data (records) that will be audited against the standard

The clerical person responsible for conducting the measurement locates the source and type of data required and reports to the CQAS coordinator.

Worksheet II must include the following information:

1. Results of audit reported by clerical person to CQAS coordinator
2. The number of records screened, and the number audited against standard (these figures can be different)
3. The number of variant cases, plus the percentage of variant cases out of those tested
4. The identification (by patient identification number) of individual variant cases
5. Observations, not necessarily requested, made by the clerical person during data collections which may clarify or explain variations
6. General comments by the clerical person

The results presented within the context of Worksheet II are then distributed to a professional who validates the variations. Analysis is presented to the CQAS committee. The responsibility for analysis rests with the appropriate department or the medical center personnel who are the subject of the standard.

Worksheet III documents the analysis of variations identified in clerical reports. The analysis centers on whether there exists some clinical or administrative justification for documented variation. Data included on the worksheet during this analysis phase are:

1. Date when the results of the review and analysis were reported to CQAS committee
2. The identification number of the variant case
3. A brief description of the type of variation
4. A "yes" or "no" as to whether the variation was justified. A "no" response indicates that corrective action is desirable, while a "yes" response indicates the case will be dropped at that point
5. Percentage of measured and reviewed cases not justified
6. For cases not justified, data must be entered which notes where the variation took place and where corrective action should be directed (three categories are listed, "institutional, department, individual")
7. The reviewer must be identified, with accompanying comments on type of problem and resolution (if any) of the variant case

The documentation did not specify any guidelines to be followed for review of justifications. This determination is left to the implicit judgment of the reviewer.

Worksheet IV notes the type of action recommended and actually taken. The data elements required here are:

1. The data analysis conclusions (Worksheet III) reported to the CQAS committee
2. Conclusion of the CQAS analysis stated and the type of need (education, channeled system, etc.) identified
3. Date that recommendation was sent to action agent
4. Brief statement describing the type of action recommended
5. Person who has responsibility for acting on the recommendations (e.g., department chief)
6. Date that action was taken
7. The type of action that was instituted (time, place, results)

The CQAS coordinator is responsible for all worksheet data and insures each step is correctly matched with the required data elements on the worksheets. Although the process from Worksheets I through IV is systematic, the CQAS system depends upon flexibility and judgment in deciding whether a variant case is justified.

In summation, the discussion above describes the two major points of the CQAS program:

1. A review of medical records (or other documentation or activities) to identify problems

2. The method for quantitatively assessing the problem and documenting that corrective action has been implemented, remeasuring to assess the success of the corrective action. This is a six phase process:
 - a. Deciding whether a problem is amenable to standard setting format for solving
 - b. Developing a standard to measure a problem
 - c. Stating the standard, collecting information on the standard and measuring the problem against the standard
 - d. Analysis of measurement (specific variation compared to standard) to determine whether a justification exists
 - e. Presenting conclusion of analysis
 - f. Recommending appropriate corrective action and following through to see that it is successfully implemented and corrects variation

OPERATIONAL ACTIVITIES

This section of the program description examines the Kaiser quality assurance program from one perspective: the implementation of CQAS through the coordinator of education's role for the Permanente Medical Group. Investigators asked to review two individual CQAS programs, but agreed to the suggestion such review would not allow for an accurate perspective of the overall program.

The office of the coordinator of education has just added its first central staff member to formally monitor and assist the individual CQAS programs. Previously, staff consisted only of a secretary. As noted earlier, the CQAS program originated with the coordinator of education but was implemented by personnel involved at various facilities. Decentralized implementation was deliberate although the coordinator of education's office did monitor and assist with different program activities.

The operational status of all the medical center CQAS programs was determined through two processes:

1. Abstraction of CQAS meeting minutes for different medical centers
2. Interview documentation from Meg Kellogg

Presently, 12 medical centers have implemented CQAS activities. The operational status of each CQAS program seems to vary by facility because of the individualized implementation and will be described by facility, based on a review of CQAS committee meeting minutes.

Investigators examined all of the minutes compiled at the office of the coordinator of education to note general activities implemented by the different facilities. The minutes were examined only to substantiate program operations. Minutes from each facility reflected the following general activities:

Facility A

1. Two-hour CQAS meetings took place
2. Meeting covered action on 20 standards
3. CQAS committee to send memorandum to each department peer review meeting regarding standard setting
4. Use of Worksheets I, II, III and IV was noted
5. Discussion of CQAS budget
6. Discussion of setting centerwide standard and the routing for approval
7. Eighty-eight standards were at different stages of implementation

Facility B

1. Reformulation of several standards
2. Audit results of two standards presented
3. Discussion of standards developed by Pediatric Department
4. CQAS subcommittee appointed to further study and develop one standard
5. Identification of one problem within X-ray department
6. Discussion of summarizing and documenting departmental audits
7. Development of standards for improvement of progress notes
8. Discussion of new standards from Department of Medicine

Facility C

1. Review of all standards developed in facility
2. Discussion of five centerwide standards
3. Attempt to establish standards for treatment of acute gonorrhea; subcommittee established to study the problem
4. Discussion of treatment for pelvic inflammatory disease
5. Discussion of Nursing Quality Assurance Project
6. Report of first meeting of Chart Audit Committee for nursing services

Facility D

1. Reports on two pilot audits, (1) head trauma (2) patient discharge
2. Discussion of working with area PSRO
3. Results of pediatric asthma audit
4. Results of nursing audits
5. Report of reaudit of standard for abnormal pap smears
6. Report of reaudit of fetal heart tones in delivery room

Facility E

1. Discussion of new telephone message form, with input from CQAS committee
2. Results of audit for two nursing standards
3. Development of one new standard
4. Report on two surgery standards, noting high compliance

Facility F

1. Report on utilization of packed cells
2. Report that administrative CQAS Committee working on plans for recording blood pressure in certain departments
3. Report on medical record review (problem identification)
4. Report that Nursing Service completed two audits
5. Consideration of proposed audit goals presented by one physician

Facility G

1. Presentation and review of standard for recording postoperative diagnosis
2. Report on audits conducted on five standards
3. Report of a standard audit in another facility
4. Discussion of follow-up process for urine cultures
5. Discussion of interaction with regional laboratory personnel regarding ordering of laboratory tests
6. Review of CQAS budget

Facility H

1. Review of five specific standards for reformulation
2. Discussion of results of five standard measurements
3. Three standards deferred for action

Facility I

1. Discussion of role of CQAS committee within medical center
2. Discussion of CQAS methodology
3. Development of one new standard

Facility J

1. Discussion of progress in measuring four new standards
2. Development of one new standard

Facility K

1. Report of results of four audits
2. Development of 11 new standards for audit

The study staff reviewed all minutes compiled by the regional office. Although the minutes were variable in terms of format, content and production, they provided evidence that the outlined CQAS methodology was being implemented. Minutes for the medical center CQAS committee not compiled in this office exist, and are compiled at each facility. CQAS committee members are not required to report all activities. Formal monitoring does not include minutes, but only a sample of audit worksheets and periodic summary reports, which are used to computerize the standards and their status and to report to the KFH Board of Directors (no fixed reporting schedule).

A review of the CQAS committee minutes reflects several points regarding the operational status of CQAS methodology:

1. CQAS Committee meetings are fairly well attended, although this fluctuates between high participation facilities and low participation facilities (identified by Kaiser personnel).
2. The parameters of CQAS committees vary by facility; some committees are involved only in CQAS matters, while others involve themselves in administrative, general research and utilization issues.
3. The establishment of standards and the audit of those standards occur in all facilities.
4. There is a high level of interaction between Medical Center CQAS committees and departmental committees (noted in 10 sets of minutes).
5. There exists a high variability in the number of standards used in each facility (one facility covering over 20 standards in a meeting, another facility covering two standards in the same period of time).
6. Some facility nursing services are involved in CQAS activities.
7. CQAS activities seem to cover, with equal probability, ambulatory and hospital problems.
8. There seems to be consistency in the phrasing of standard statements among all facilities.
9. All minutes reflect discussion involving audit results of standards and development of new standards.
10. Minutes reflected little discussion of variance justification or action taken on nonjustified variances, although Kaiser personnel indicated the bulk of variance discussion is to be done at departmental level, where variance is justified and actions take place.
11. The frequency of notations about variance, justifications, actions, and developed standards in CQAS minutes is as follows:
 - a. Variations - 15
 - b. Justifications - 2
 - c. Actions - 6
 - d. Developed standards - 109

Kaiser personnel made several points regarding CQAS administration and methodology:

1. Introduction of more formalized and routine monitoring of facility CQAS activities in order to make reporting more routine.
2. In terms of CQAS committee membership, it was noted that a representative of each major department, director of nursing, physician in chief, chief of education, administrator (or representative), and the assistant administrator (who is CQAS coordinator) are the usual members.
3. Medical record room personnel provide in-kind support to all CQAS activities in pulling charts; however, CQAS personnel often avoid having charts pulled by using other data sources or obtaining the charts from other places (e.g., at nursing stations, physician offices) depending on the nature of the problem being studied.
4. The clerical personnel conduct the audits, compile the information and type the data.
5. The CQAS clerk (50 to 100% time) and coordinator (10 to 20% time) are budgeted for each facility.
6. Physician time and committee meeting time are not budgeted separately in the formal budgeting-accounting system.
7. Some problems identified through CQAS are handled by administrative personnel.
8. The organizational parameters of the standard setting (e.g., medical center-wide, department, etc.) vary by facility.
9. CQAS standards can relate to both hospital and clinic problem areas.
10. More standards are developed within departments than across departments.
11. Most CQAS committees meet once a month, usually for 1 1/2 to 2 hours; some meet weekly, some twice a month.
12. The CQAS coordinator is supervised by the administrator for routine activities, but reports to chairperson of CQAS committee for CQAS activities.
13. CQAS chairperson leadership is an important variable in operational level of CQAS committees.
14. Worksheets I through IV are employed in most facilities; the few exceptions do use worksheets in conducting audits.

15. Regional meetings of facility CQAS representatives take place to examine standards established across facilities, discuss regional problems, etc.
16. The effectiveness of setting facilities standards has "not really" been determined.
17. No formalized and structured guidelines for standard development exist, though the standards are systematic for measurement of variations.

Additional Comments

Activity level reflects high use of the CQAS program within the 12 medical centers, although there is great variation among programs. The design of the CQAS methodology allows discretion in the implementation of the total program; the major components of the method seem to be uniformly implemented in eight of the facilities.

Two areas in which operational activities could not be documented through minutes, but could through the audit worksheets included:

1. What actions were taken on variations identified
2. Physician recommendation on whether or not variations were justified

The differences among centers in several areas were:

1. What problems are chosen
2. The number of standards generated
3. Identification of variations
4. Amount of action implemented

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The Kaiser Permanente Medical Care Program (KPMCP) is directed by a 17-member board of directors. There are four major organizations within Kaiser: (a) Kaiser Foundation Hospitals (KFH); (b) Permanente Services, Inc. (PSI); (c) Kaiser Foundation Health Plan (KFHP), and (d) the Permanente Medical Groups (PMG), the physician organizations which contract to provide professional services. The contracts tie the medical groups to the health plan, consisting of benefit packages and charges that constitute the KPMCP.

The Kaiser Permanente Medical Care Program provides inpatient (hospital and long term care) and outpatient services to a prepaid, enrolled population. The Health Plan is the financial component.

Specific organizational positions include the following: (a) executive directors of the PMG, (b) six regional presidents of KFH and KFHP, who report directly to the board of directors; (c) senior vice-president-Northern California regional manager reporting to the president. This senior vice-president's office handles contractual relations with PMG for provision of services. The regional manager has several organizational components reporting to him: (a) vice-president and regional administrator, KFH; (b) vice-president and manager, KFHP; (c) regional controller, KFH, KFHP. The vice-president and regional administrator, KFH, report jointly to the regional manager and the executive director, PMG, who is also regional administrator for the clinics, run by PMG. The regional administrator has major units reporting to him, encompassing the regional administration of ancillary services for the medical centers. The medical center administrators report directly to the regional administrator and have responsibility also to the physician-in-chief at each medical center. The center administrators are responsible for managing administrative, professional (in conjunction with the physician-in-chief) and ancillary services, and all non-physician department heads report to them.

The Permanente Services, Inc., group is controlled by an independent board of directors representing KFHP, KFH and PMG. The president of this group reports directly to the directors. As implied by its name, it is a service organization dealing with planning, finances, and other service aspects.

The Permanente Medical Group is managed by an executive committee, appointing an executive director to administer the group's activities. The coordinator of education reports directly to the executive director. Each facility's physician-in-chief reports directly to the executive director.

The Northern California Region includes 12 medical centers and four detached clinics. The total patient population is approximately 1,252,717.

Each facility uses a medical record of its own choice. Study staff could not determine how many different types of records were used, but Kaiser personnel indicated a chronological record is the norm.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

Kaiser Permanente agreed to participate in the study during a telephone conversation on December 5, 1975. Study staff had previously received initial documentation about the entire program. The quality assessment program is officially titled Comprehensive Quality Assurance System (CQAS). The documentation received and compiled by the study staff includes the following:

1. "A Comprehensive Quality Assurance System" (a 99-page document describing the entire CQAS program)
2. CQAS Worksheets (December, 1974)
 - a. Standard and measurement instruction (I)
 - b. Clerical function report (II)
 - c. Analysis of variations for clinical-administrative justification (III)
 - d. Recommendations and action (IV)
3. Outpatient Care Review Report (revised December, 1973)
4. Microsampling data sheet
5. "Departmental Comprehensive Quality Assurance Committee," flow diagram of CQAS process
6. Medical Center Comprehensive Quality Assurance Committee," flow diagram of CQAS process
7. Organizational chart, Kaiser Northern California Region (July 1, 1975)
 - a. Kaiser-Permanente Medical Care Program
 - b. Regional Medical Centers Administration
 - c. Permanente Services, Inc.
8. CQAS meeting minutes for 11 facilities (19 separate meeting results, from January 7, 1975 to December 17, 1975)

Documentation provided staff with an accurate account of the planned CQAS program and an indication of the operational status of the program within 12 facilities. Document No. 1 (see list), outline for evaluation of the program, specified program methods and elements, specific output of the CQAS problem identification and measurement, and the overall philosophy. It also noted the importance of program implementation at the departmental level.

Kaiser was visited by study staff on March 18, 1976. Interviews were conducted with the coordinator of education for the Permanente Medical Group, and a staff associate responsible, among other duties, for covering the daily operations of the CQAS program. These two act in an advisory capacity to the various CQAS committees.

The interviews covered many topics including:

1. Initial development of CQAS methodology
2. Initial administrative implementation of CQAS
3. Selection of review entities in CQAS
4. What types of standards should be employed in context of CQAS program
5. How samples are chosen in CQAS
6. How to measure physician performance via formal quality assessment methods
7. Problems inherent in monitoring quality activities in different settings
8. Modification of program elements during different phases of operations
9. Provider attitudes when formal quality activities are implemented

The interviews focused especially on the present operational status of the CQAS program.

The main area of responsibility of the coordinator of education has been development and revision of methodology, and to some extent, monitoring of operation activities. The direction of the staff associate is toward more systematic monitoring of and assistance to the CQAS medical center activities.

HMO-INTERNATIONAL

Los Angeles County, California

SECTION I

I N T R O D U C T I O N

HMO*-International (HMOI) provides health care to approximately 105,000 people. Originally established as a medical practice in Los Angeles in 1941, HMOI had expanded into prepaid medicine by 1966. The home office provides financial and management services to its operational subsidiaries and affiliates from central Los Angeles. Subsidiaries and affiliates provide medical, laboratory, pharmaceutical, dental, and optometric services in 19 facilities throughout the Los Angeles area. A medical director coordinates all medical field operations from the home office with the assistance of an administrative team for managerial and supportive services. Each of the 19 facilities is supervised by a group administrator and a senior physician.

The present quality assurance program evolved from an audit of immunization rates and the implementation in 1972 of the outcome-based health accounting approach to evaluation of hypertension**. The program began officially July 1, 1975, with two approaches: (1) problem-oriented peer review based on explicit process and outcome criteria, and (2) peer review of randomly selected medical records based on implicit and explicit process criteria.

The former was designed to achieve and maintain high quality care of specific health problems; the latter was designed to improve quality in the management of individual patient visits and to integrate individual visits with total care of the patient. Both types of review provide performance profiles for physicians based on objective data and identify deficiencies in the care of individual patients for corrective action.

* Health Maintenance Organization

** Williamson, John W.: Outcome assessment for implementing quality assurance systems. Quality Assurance of Medical Care DHEW (HSM) 73-7021, Feb 1973, pp 313-328

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section describes HMOI quality assurance activities in three areas: program background, description of planned quality assurance activities and description of operational activities.

PROGRAM BACKGROUND

Program documentation is not extensive. A letter from the director of quality assurance (December 5, 1975) outlined major program components, while further information about the program's operational status was collected through onsite interviews and a follow-up interview with the director. This description simultaneously outlines the program elements as they were planned and their operational status, since all program elements are in some stage of implementation.

A quality assurance program was initiated at HMOI for two primary reasons:

1. State regulations require quality assurance programs in institutions which serve a large Medicaid population
2. HMOI desired to improve both the quality and the cost effectiveness of its health care by instituting better quality controls and by putting greater emphasis on prevention or early detection of medical problems

One HMOI physician had a strong interest and sound experience in quality assurance. Planning for the program included agreement by HMOI to appoint this physician as fulltime director of quality assurance and to provide internal funding to support the program. The director then developed some general program goals and initiated discussions with each HMOI facility regarding those goals. A general literature survey was conducted, emphasizing outcome measurements. The director discussed various methods with Dr. John Williamson of Johns Hopkins University, who developed the health accounting approach. An Educational Planning Committee was established consisting of a nutritionist, a health educator, the director of Ambulatory Quality Assurance, and the director of Hospital Quality Assurance to oversee some of the quality assurance activities, as well as to implement special programs based on results of quality assurance studies.

Quality assurance activities are managed by the director and his administrative assistant, with support from each facility's personnel when activities are implemented. Centralized management for 19 independent facilities requires the director to develop, implement and monitor the quality assurance activities in coordination with each facility's personnel.

HMOI personnel cited four primary goals for the program:

1. To reduce unnecessary morbidity and control clinic disease conditions
2. To improve health status
3. To insure preventive care as an integral delivery system component
4. To define patient needs for HMOI

The program also attempts to coordinate quality evaluation, staff development, patient education, and continuing education for physicians. The goals and a program philosophy are currently being documented.

Quality of care is defined in terms of health status. To define health status, specific problem-oriented criteria are developed for each problem selected for review. The definition of quality evolves as the various criteria are met and health status improves.

Personnel involved in and funded by the quality assurance program are:

1. The director, who has total program responsibility
2. An administrative assistant, who abstracts all charts and conducts initial review of data under supervision of the director
3. Two health accountants (partially supported through outside funds), who are responsible for data collection in the clinics involved in the health accounting approach
4. The California State Department of Health, Dr. John Williamson, and selected personnel specializing in the topics under investigation, all serving as consultants.

PLANNED ACTIVITIES

The program will consist of two major review efforts:

1. Explicit audit - review of abstracted charts using explicit process and outcome criteria
2. Peer review - review of charts using implicit and explicit process criteria

The criteria to be used in the explicit audits are described below, followed by a description of the method to be used for peer review.

Explicit Audit Process

Six procedures will be followed in the explicit audit process:

1. Problem Identification

The Educational Planning Committee with input from participating clinics will be responsible for selecting and ranking problems for review. Problems are selected by considering three major factors:

- a. California State Quality Assurance Department regulation list of 22 conditions which must be reviewed
- b. Current literature
- c. High potential for both medical and cost impact

Problem areas may include medical, administrative structure, consumer and educational concerns. Once a list of problems is developed in order of importance, it will be sent to the 16 participating clinics for agreement.

2. Pilot Evaluation

An audit protocol will be developed for a problem, then applied in one clinic to determine whether the problem warrants review in all facilities. The Educational Planning Committee will review the findings and if further action is warranted, a systemwide program will be implemented.

3. Criteria Development

Guidelines for process and outcome criteria will be discussed with personnel in all clinics. Specific criteria and standards will be developed by the quality assurance department, sometimes in consultation with experts in the problem area. Criteria will be revised as necessary after meetings with medical staff in the various facilities.

4. Initial Assessment in Each Clinic

Data will be abstracted from medical records by using questions that require a yes or no answer and involve no subjective judgement. For example, in the hypertension study, the eight questions were as follows:

1. Were the blood pressure measures taken properly under proper conditions?
2. Was the diagnosis of hypertension confirmed?
3. Were the necessary tests and studies completed to identify the presence or absence of target organ damage?
4. Were the necessary tests and studies done to identify underlying, treatable causes of hypertension and co-morbid conditions?
5. Were the necessary tests and studies done to identify adverse reactions secondary to the medications used?
6. Were the necessary periodic tests and examinations done to identify progression of the disease which might warrant changes in treatment?
7. Which patients did not receive proper supervision?
8. Which patients received proper supervision, but did not have controlled blood pressures?

The health accountant will be responsible for abstracting data from a 100% sample of medical records for a designated period, and for preparation of descriptive statistics. The director will review and analyze data to develop recommendations for corrective action.

5. Feedback

Results will be presented to the medical staff at each facility. The senior physician of the facility and the staff will be responsible for formulating a specific corrective action plan. In some cases, individual members of the medical staff will be contacted for individual counseling. Educational programs and other nonpunitive appropriate procedures designed to correct deficiencies should be stressed. Study results will be made available to the HMOI quality assurance committees, clinic medical directors, and the California State Department of Health.

6. Restudy

After a two-month period, deficient cases will be reassessed using basically the same method as the problem phase. If unsatisfactory activity continues, meetings will be held with medical staff, health educators, and educational planning committees to determine further action. This cycle will continue until the problem is resolved.

To clarify the concepts of process and outcome criteria, three categories of outcome are defined:

1. Diagnostic outcome: audits to verify the diagnosis
2. Therapeutic outcome: audits to verify the use of appropriate procedure according to diagnosis
3. Functional outcome: audits to verify that health status of the patient, with respect to the problem, is satisfactory

Completing this six-step audit process should take approximately two to five weeks. Review of audit results by the director should take approximately two weeks.

Audit results will be made available for review to quality assurance committees, medical directors, state auditors, health accountants, and the director of quality assurance.

The philosophy of HMOI will be to examine all three types of outcome (diagnostic, therapeutic and functional) because they are closely related. There are no plans at present to conduct audits of functional outcome.

Peer Review

The second HMOI program procedure will be peer review of randomly selected charts. All physicians in each department will review ten charts (attempting to identify most recent three visits per patient) for designated episodes of illness. Charts will be selected from the patient register. A record room clerk will select randomly charts of patients seen during the last 30 days, often using every tenth chart to get equal distribution among morning and afternoon patients. The director will analyze numerical scores and will pull charts randomly to determine agreement. The planned result of peer review will be the development of physician profiles.

The philosophy behind the peer review approach will be an educational one. Physicians will not only receive a copy of reviews of their records, but will become more aware of standards of satisfactory performance as they conduct review. Physicians who cannot perform a review satisfactorily may be in need of education.

The first pilot study of the peer review system at HMOI has been completed, and a second pilot study will begin in October.

ACTIVITIES IN OPERATION

The pilot study documented a major explicit audit for hypertension conducted in ten HMOI facilities. The study was implemented as planned (see explicit audit, described above), although the implementation reflected a higher degree of procedural specificity than did the plans.

Before implementing the total study, HMOI pretested the method in one facility using the health accounting system.

The three major steps in the audit process were:

1. The abstracting of hypertensive patient records and explicit review by the administrative assistant
2. A review of the abstracts by the director for medical judgment
3. Presentations of audit results to facility personnel

Each facility generated a list of patients with a diagnosis of hypertension, usually from an index card file kept by the nursing stations, based on patient visit logs.

The director indicated that a literature review was conducted as part of the process for criteria development, and input from HMOI physicians and outside experts was sought. Review by each facility resulted in criteria revision. Once a final consensus was reached, the director began sample selection and data collection.

After the first level of review was completed by the administrative assistant using explicitly defined criteria, initial criteria were submitted to the facilities for rediscussion. For the hypertension study, there was no evidence criteria were changed.

The administrative assistant abstracted the records, collecting seven data items:

1. Name of patient
2. Date of last visit
3. Blood pressure
4. Note that diagnosis was made
5. Note of treatment regimen

6. Whether patient was supervised, satisfactorily or unsatisfactorily (2nd level of review by director)
7. Whether hypertension was controlled or uncontrolled

The objectives of this first level of review were:

1. To develop an initial deficiency list for a patient in reviewing treatment for hypertension based on explicit criteria
2. To collect and compile data

The data from the abstracting were then stratified into four categories of status for hypertensive patients:

1. Controlled with satisfactory supervision
2. Not controlled with satisfactory supervision
3. Controlled, unsatisfactory supervision
4. Uncontrolled, unsatisfactory supervision

The director then reviewed the categorized data for each clinic, using his medical judgment regarding data accuracy in each case.

A summary of the hypertension study indicated the total number of cases audited was 688 in the 10 facilities, 17 to 131 audits conducted per facility. Frequency rates of the four data categories were also given.

Aggregate figures by facility and case-by-case deficiency lists were presented to chief physicians at each facility. Chief physicians were responsible for deciding what kind of corrective action to take and when. There is some evidence, however, that corrective action was conducted with input from the director.

Study results were also presented to the central Quality Assurance Committee and the medical director of the California Medical Group, the physician service affiliate in the HMOI organization.

No evidence was available dealing with specific feedback procedures implemented based on the hypertension study.

The required two-month reassessment had not been completed by HMOI personnel at the time of this report, although all indications were that a trial analysis noting the percentage of changes in controlled and uncontrolled population would be completed. Only one disease condition was chosen for audit, but documentation indicates the audit was conducted in a rigorous manner. The director indicated audit results would be used because of the quality of the results and because of support from personnel of the facilities and HMOI central administrative and medical personnel.

ADDITIONAL COMMENTS

HMOI personnel outlined plans intended for implementation in the near future, including:

1. More extensive use of computerized data
2. Use of outside consultants to monitor reliability of the health accountant and peer review data collection
3. Greater use of health accountants for data collection and analysis and less use of the quality assurance director
4. Documentation of the goals, philosophy and quality assurance approach
5. Assessment of cost-benefit
6. Expanded number of audits using and refining the present system

Several unique characteristics of HMOI quality assurance activities were noted by investigators:

1. HMOI has implemented and tested a quality assurance method for a number of facilities, with only two full-time people (director and administrative assistant) in a period of approximately six months
2. HMOI implemented and tested its system with no explicit line item funding other than the salaries and related overhead of the director and administrative assistant
3. Sampling procedures required a 100% sample over a designated period
4. The practice setting treats somewhat varied conditions:
 - a. An unstable and mobile patient population
 - b. Patients who relate more to the clinics than individual physicians
 - c. A fairly high degree of turnover in the medical staff

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

HMO-International, its subsidiaries and its affiliated companies constitute a health services organization which provides fee-for-service and prepaid health care through three organizations:

1. Consolidated Medical Systems, Ltd. (CMS) is a nonprofit corporation formed to contract with government agencies. In 1975, CMS was the largest prepaid Medi-Cal provider in California.

2. California Medical Group Health Plan, Inc. (CMGHP) is a professional medical corporation which does not contract with the State of California, but with employers, unions, and other groups for provision of negotiated health benefits.

3. California Medical Group (CMG) performs most of the outpatient medical care rendered to members of CMS and CMGHP. CMG is a partnership of physicians operating in 19 medical groups. In April 1976, CMG employed 93 full-time and 81 part-time physicians at 19 medical offices. Services include the usual specialty areas; drugs, family planning, eye care, psychiatric care, and prosthetic appliances. All patients are assigned to a family practitioner for initial evaluation, then referred to specialists as required. Routine appointments are available from 8:00 a.m. to 6:00 p.m. five days a week and walk-in or emergency appointments are accommodated.

A chronological medical record is filed in the patient's home office. If the patient uses another facility, a copy of his medical record is sent to his home office.

The prepaid population served totals approximately 105,000, of whom approximately 43% are served through commercial contracts and 57% through contracts with the State of California under the Medi-Cal Act. More than 50% of the population is under 25 years old and consists of approximately 57% females and 43% males.

Fee-for-service accounts for 4% and prepaid contracts 96% of funding. Revenue per year approximates \$40,000,000.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

HMO-International agreed to participate in the study during a telephone conversation on November 13, 1975, and forwarded initial documentation of the quality assurance program on December 5, 1975.

Several documents were sent to study staff for review:

1. System flow diagram of quality assurance program (December 5, 1975)
2. Letter containing historical development information (December 5, 1975)
3. Documentation on utilization patterns, medical record system, patient routing system, confidentiality and accounting (November, 1975)
4. HMOI publications outlining corporate procedures

HCMS staff visited the site on December 22 and 23, 1975. The director of quality assurance and the HMOI Coordinator were interviewed. After the on-site investigation, there was more data collection via telephone interviews with the director.

During the interviews, which were the main source of information for this description, several areas were covered:

1. Development of approach
2. Expressed objectives and goals
3. Unique characteristics of HMOI delivery system
4. Organizational structure for quality assurance
5. Focus of audit review system
6. Data collection and compilation procedures in audit
7. Abstracting procedures used in audit
8. Use of coding in data compilation
9. Data analysis used in audit
10. Use of audit results in problem solving
11. Administrative interactions between HMOI personnel in audit activities
12. Development and use of medical criteria
13. Specific review procedures in audit program
14. Future activities for quality assurance program

NORTHEAST VALLEY HEALTH CORPORATION

San Fernando, California

SECTION I

I N T R O D U C T I O N

Northeast Valley Health Corporation (NVHC) is a nonprofit prepaid community health network, originally funded by OEO, now partially supported by DHEW. It is governed by a 24-member board of directors elected and appointed from the surrounding community. NVHC operates two facilities in Pacoima and San Fernando, California. The San Fernando facility is the participant in this study. Physician, administrative, and other staff are employed by NVHC.

NVHC's quality review program, a Quality Assurance System for Ambulatory Care (QASAC), was formally funded by the California Regional Medical Program (CRMP) and staffed in October, 1974. Although it was funded specifically as a demonstration project, implementation of an ongoing quality assessment program was also emphasized. Explicit criteria are used in a peer review system to perform an extensive process-oriented and limited outcome-oriented method of quality assessment.

NVHC provides comprehensive ambulatory care directly through its own staff and provides hospital and specialty services by contracting with institutional and individual community providers. Nearly all NVHC revenue is received on a prepaid basis (a monthly capitation rate) from the California Department of Health, through support by Title XIX (Medi-Cal), Bureau of Community Health Services (OEO low income enrollees) and private groups and individuals.

The NVHC executive director has overall administrative responsibility for NVHC and is answerable to the board of directors. The next level of management includes the following positions:

1. Deputy Director of Health Services
2. Director of Quality Review and Utilization Control
3. Deputy Director of Operations
4. Deputy Director of Marketing
5. Deputy Director of Planning and Development

The administrator for each facility reports to the executive director and each deputy director has facility personnel reporting to him in a particular area of management responsibility.

NVHC was included in the study because it had received funding specifically for research in quality assurance.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

Northeast Valley Health Corporation (NVHC) quality assurance program is called "Quality Assurance System for Ambulatory Care" (QASAC). The program is a research-operations program jointly funded by NVHC and California Regional Medical Program (CRMP), although initial funding came from OEO.

QASAC is primarily a research program geared to examine the development of medical review procedures and criteria by implementing these activities in an operational setting. Some work has been directed to feedback of audit results and evaluation of QASAC impact by re-audits of selected conditions. The director of quality review and utilization control reports to the executive director of NVHC.

The director of quality review and utilization control was hired specifically to implement the proposal made to CRMP, which included criteria development, audit of records, tabulation, analysis and presentation of audit results as well as development of computer programs.

Prior to October, 1974, and receipt of the CRMP funding, the NVHC quality review activities consisted of a monthly audit of randomly selected charts. Providers were divided into teams, each team reviewing the charts of another team. Participation in this review was limited to family practice physicians and family nurse practitioners. Chart audits were intended to include analysis of the following variables:

1. Completeness of initial assessment of patient health status
2. Completeness of physical examination and medical history entries
3. Completeness of diagnostic work-up for specified diseases
4. Validation of diagnosis made by review of pathological tissue reports, pre- and postoperative diagnosis, admission and discharge diagnosis
5. Validity and accuracy review of primary diagnostic information such as laboratory and radiological procedures
6. Preventive management
7. Use of other therapeutic techniques
8. Appropriateness of treatment including prescribed medications
9. Timeliness of treatment
10. Sufficient follow-up care including recognition and notation of abnormal laboratory and physical findings, proper patient education using verbal and written instruction, proper referral of patient to other providers

Reviewed charts were recalled in later audits to observe if deficiencies had been corrected.

This program was severely limited by the following factors:

1. Review activities had to be limited to one hour per month, resulting in a low number of charts actually reviewed

2. There was little agreement among providers on review standards because implicit standards were used by each practitioner
3. There was an insufficient number of cases for each diagnosis to identify patterns of deficiencies
4. There was no measurable improvement in patient care

As a general result of the program's ineffectiveness, NVHC submitted a grant proposal to CRMP for development and implementation of a formal quality assurance program. This grant was awarded to NVHC in October, 1974. The documentation notes several goals and objectives of the grant:

1. To develop, implement, evaluate and refine a quality assurance program for an acute disease state, a chronic disease state and a preventive or health maintenance service (due to 50% budget cut, CRMP and NVHC agreed to reduce quality review to an acute disease state and a preventive or health maintenance service)
2. To develop, implement and evaluate a continuing education program for providers in relation to the criteria established for effective management of the conditions selected for study
 - a. To develop educational materials related to the selected conditions for both providers and consumers
 - b. To hold individual and group educational sessions

To accomplish these goals, the documentation outlines several tasks that were to become part of the operational program:

1. Identify most prevalent acute disease entities and preventive or health maintenance service
2. Review available literature pertaining to quality review
3. Observe quality review protocols used in existing programs
4. Present appropriate protocols to NVHC providers and enlist their help in selection and adaptation of protocols to NVHC setting
5. Develop audit tools to evaluate quality of care delivered to NVHC patients relevant to the selected review entities
6. Implement audit tools and protocols
7. Develop check-list and guideline sheet for review entities
8. Replace conventional medical record progress notes with check-list and guideline sheet
9. Construct summary sheets to identify roles and educational needs of different health provider levels for review entities
10. Develop patient instruction sheets to facilitate patient cooperation thereby increasing criteria compliance including inservice training of NVHC staff in use of sheets

OPERATIONAL ACTIVITIES

The documentation provided by NVHC provides information on the proposed quality program elements and the implementation of those elements in an operational setting.

The following QASAC activities have been implemented or accomplished as of March 2, 1976:

1. Development and implementation of QASAC program elements
2. Development of continuing education program

QASAC staff reviewed literature pertinent to quality review including protocol development, utilization review, medical audit and other evaluation techniques. An appropriate bibliography was prepared in consultation with the UCLA Ambulatory Care Evaluation Project.

Staff then reviewed protocols for upper respiratory infection (URI) and well child care that had been implemented in other quality assurance programs, specifically:

1. Ambulatory Care Project (Beth Israel Hospital, Lincoln Laboratory, MIT, affiliated with Harvard Medical School) for acute and chronic conditions
2. Frontier Nursing Service, Kentucky
3. PROMIS Laboratory, Department of Medicine, Dartmouth Medical School for URI
4. Department of the Army, AMOSIS Manual
5. American Academy of Pediatrics, Standards of Child Health Care and Criteria for Pediatric Management

After review of these protocols and consultation with experts in the quality assurance field, QASAC staff decided to use existing protocols as a starting point for meeting the needs of NVHC patients, providers, and the practice setting, rather than to develop entirely new protocols.

Project staff then participated in a workshop ("Educational Patient Care Audit Workshop") sponsored by the California Medical Association (CMA) and the California Hospital Association (CHA) to familiarize themselves with techniques necessary for the development and implementation of medical criteria. A follow-up workshop was conducted at NVHC by a CMA faculty representative, to familiarize staff with audit methodology. On the basis of the CMA-CHA workshops, the quality assurance staff chose to use explicit criteria for the disease conditions chosen for audit.

Once QASAC staff decided on specific program elements, they began to design specific system components to collect and compile information. The first step was to design a scheme for efficient computer access to certain groups of medical records (e.g., all records for hypertensive patients) or to specific records. A computer file of charts containing all patient encounters, including patient identification, birth date, provider identification, encounter date and ICDA diagnostic code, was used to access all records. A computer program was developed by the director to select encounters containing ICDA codes for specific conditions chosen for review and to display the needed information in a report format; this listing was used to select charts for audit.

To select acute disease conditions and preventive-maintenance services for study and review, information was gathered on disease conditions to determine

the most frequently occurring conditions. A random sample of 200 (5%) medical records was selected. QASAC staff abstracted diagnostic data from the charts, and in fact, URI and well child care were the most commonly encountered chart entries. To validate sample results, QASAC staff prepared a computer summary of all medical encounters between October, 1973, and October, 1974. This summary confirmed results of the random sample, and URI and well child care were selected as review diagnoses.

Once the conditions for audit were confirmed, the QASAC staff's initially developed criteria were revised. Criteria revision took place in a series of Peer Review Committee meetings of the family health teams (physicians, family nurse practitioners, clinical pharmacists, public health nurses, social workers), clinic administration personnel (administrator, medical record room personnel) and the quality assurance grant staff. After a number of meetings, a consensus was reached regarding the acceptability of criteria for NVHC. QASAC staff presented developed criteria for discussion and providers supplied medical expertise needed for criteria revision. These weekly meetings began in April, 1975.

Resulting criteria were primarily process-oriented and were associated with information that could be obtained from medical records. In addition, criteria contained objective measurements and follow-up activities to evaluate overall quality of care. Desired performance levels for criteria were set at levels of compliance considered most desirable by a consensus of providers.

Charts containing selected encounters were pulled from the medical records library. Pertinent review data were abstracted from charts using a standard form developed by QASAC staff. All abstracts were manually verified by qualified medical personnel before becoming available to peer review committee members and clinic administrators.

Based on study staff review of Patient Care Audit Data Display, the QASAC staff presented audit results for each reviewed diagnosis, outlining the purpose of each audit. The display notes specific criteria for expected performance levels and actual performance levels.

Since NVHC employs a version of the problem oriented medical record (POMR), each topic of audit (e.g., otitis media, hypertension) has specific criteria for the Subjective, Objective, Assessment and Plan (SOAP) portions of the POMR. For each of these data areas, there could be one or many criteria. The expected performance level is the percentage of medical records which should have a specific criterion, so each criterion has a corresponding performance level. This level is established by QASAC staff in conjunction with NVHC providers. The actual performance level for each criterion is the number of charts meeting a criterion, divided by the total number of medical records reviewed.

QASAC staff then performed statistical analysis of chart data including comparison with desired or expected levels set by providers. Criteria and performance levels were presented to providers for review in a subsequent peer review meeting. The performance levels, as noted, were percentage figures set by providers to establish an acceptable level for expected performance. The

documentation noted that individual non-compliant providers were identified, but not publicly mentioned in peer review meetings; remedial action was recommended to correct deficiencies.

Once the audit had been completed for a particular diagnosis, results were discussed with provider staff. The discussions centered on five areas of health care:

1. Initial assessment of patient health status
2. Physician exam and history entries
3. Diagnostic work-up for specific diseases
4. Review of pathology reports, pre- and postoperative diagnosis, admission and discharge diagnosis
5. Diagnostic information including laboratory and radiological procedures to review validity and accuracy

Reliability of audit is completely dependent on quality of charts. The data presented to providers were aggregate percentages for performance levels.

The documentation noted the following possible remedial actions:

1. Explicit delineation of responsibility for completion of certain procedures, examinations, history, treatment and patient education
2. Institution of provider continuing education for a specific area of patient care
3. Development of guidelines for use by providers when a patient presents certain symptoms or complaints
4. Inservice education programs for instruction of staff to correct identified deficiencies in patient care
5. Administrative changes (e.g., change of clinic hours, purchase of pediatric blood pressure cuffs)
6. Development of patient education materials (e.g., URI instruction sheets) for use by patients with certain illnesses

At no time has any punitive remedial action been instituted against a provider; remedial actions are intended both to directly improve the quality of care delivered to patients, and to indicate education needs of providers.

The last stage of quality of care evaluation was to perform a reaudit of selected charts to determine efficacy of remedial action. Reaudit has been performed for well child care and URI and provider performance has improved in most areas. The documentation noted the cyclical audit method is necessary for continuing reevaluation of criteria and performance related to quality care.

Once the well child care and URI were completed, QASAC staff selected acute suppurative otitis media, diabetes and urinary tract infection for audit. The October 1 to December 31, 1975, Progress Report indicated criteria and performance levels were established for diabetes and otitis media. The QASAC staff audited records and presented results on these two conditions to provider staff. Peer review meetings were held to discuss remedial activities for diabetes. Performance was at a high enough level for otitis media that remedial action was not necessary.

Other accomplished tasks related to development, implementation and evaluation of educational materials. Protocols and guideline-checklist sheets have been developed for those disease conditions audited and were reviewed for educational purposes. Guideline sheets were developed by revising and aggregating relevant materials from previously developed protocols and progress notes from audited records. Some providers are using "Guideline Sheets" in diagnosis and treatment of URI and well child care.

Inservice education has been implemented to increase physician and nurse provider awareness of criteria and provider roles in management of selected services.

Patient education materials (instruction sheets) have also been developed to increase patient awareness of the patient role in proper health management. Educational materials are available in both English and Spanish and providers have received inservice training for use of patient education materials.

ADDITIONAL COMMENTS

Future plans of QASAC staff include training medical records personnel to abstract medical charts for quality review. Guideline sheets may be substituted for progress notes currently used in charts. Both activities would facilitate and expedite data collection for quality review.

The October 1 to December 31, 1975, Progress Report indicated QASAC staff would continue development of a computer program which will link hospitalization, ambulatory and registration information into one computer file. Presently, information in these three areas is contained in three separate files.

Further activities include audit of urinary tract infections and continued implementation of consumer and provider educational activities.

NVHC personnel noted several unique characteristics in the NVHC system. These are described in relation to their importance in the development and implementation of NVHC quality review, including:

1. Autonomous role of director of Quality Review and Utilization Control has facilitated development of QASAC unhindered by pressures from other interests.
2. Provider staff of NVHC is young, resulting in a high physician turnover and absence of older staff for guidance and support.
3. High physician turnover has made it difficult for QASAC to obtain consistent support for quality review.
4. NVHC quality review program is jointly funded by NVHC and CRMP. Reduced CRMP funding has limited development of QASAC. In addition, CRMP has announced an eventual complete withdrawal of funds, leaving future funding of NVHC QASAC to be assumed completely by the corporation.
5. Physician progress notes in medical records are generally illegible and are a serious limitation to quality review. NVHC hopes medical record notes will be dictated by providers and transcribed to charts in the future.

QASAC is a research program implemented in an operational health maintenance setting. Operational activities of the program vary with the amount of time staff devotes to the audit activities. QASAC staff presented only aggregate data on critical performance levels; no individual noncompliant providers have been singled out.

The QASAC staff has designed an evaluation plan for the program, though. at the time of site visit, the results of the evaluation were unavailable. The evaluation may now be available since the CRMP contract required an evaluation be completed.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

NVHC operates as a publicly supported nonprofit organization. All health care is provided by corporate physicians or by private physicians on referral contracts with NVHC.

NVHC operates primarily as a prepaid health plan. Ninety-five percent of revenue is received from either Title XIX, DHEW, or private payers on a prepaid monthly capitation schedule; 5% is fee-for-service. The NVHC service population is approximately 68% white, 23% chicano, 7% black and 2% other.

NVHC has categorized its services into seven areas:

1. Professional outpatient services: clinical laboratory, X-ray, audiology, emergency room, social services, minor surgery, oral surgery
2. Preventive health services: periodic health review, health education
3. Professional inpatient services: adult and pediatric medical and surgical care, postoperative care, obstetrics, etc.
4. Hospital services: up to 365 days hospitalization, diagnostic and rehabilitation services, extended care services
5. General nursing services
6. Pharmaceutical services
7. Appliance, equipment and supplies

NVHC is directed by a 24-member community-based board of directors. Their decisions are implemented by an executive director who is responsible for all NVHC operations. Directly responsible to the executive director are deputy directors of health services, operations, marketing, and planning and development, and the director of quality review and utilization control. The executive director is responsible for supervision of medical directors at the clinics.

The Deputy Director of Operations is responsible for financial management (accounting, claims, purchasing) eligibility verification and supervision of some nonmedical personnel. The Deputy Director of Planning and Development is in charge of facilities planning, special projects, and liaison with governmental agencies. Each clinic site has an administrator who is responsible for all ancillary (not health team) services and personnel. Known professional affiliations of NVHC are with UCLA and CRMP.

Computer hardware used at NVHC for quality assurance is located at UCLA. Software available at UCLA includes SPSS and BIOMED (statistical packages) and a disease index program. The Problem Oriented Medical Record (POMR) and a computerized encounter form are used for documentation and subsequent analysis of ambulatory encounters.

Each corporate-owned health center has the capability of handling approximately 10,000 enrollees. There were approximately 7,500 enrollees as of March, 1976. The primary care physician to population ratio is 1:1,200. There are

approximately 85 panel specialists, six contracted community hospitals, two contracted extended care facilities, in-house dental, lab, X-ray, pharmacy, and social services. There are agreements with UCLA, Cedars-Sinai, Children's and USC medical centers to provide tertiary specialty and inpatient services. NVHC contracts with some valley community medical groups for primary care services for those enrollees not living near corporate-owned facilities.

SECTION IV

HCMS STUDY INFORMATION

NVHC agreed to participate in this study after a meeting between study staff and the administrator of the San Fernando site (October 30, 1975). During this meeting, HCMS staff explained participation requirements and arranged for a complete follow-up site visit on January 16, 1976. During the site visit, the data collection instrument and administrative constraints questionnaire were used as interview guides.

The following documentation has been received from NVHC:

1. Annual Report, October 1, 1974, to June 30, 1975. A Quality Assurance System for Ambulatory Care (QASAC), presented to California Regional Medical Program (CRMP), includes description of current status, history, objectives and activities for the report period, conclusions and recommendations for future action, audits, results of upper respiratory infection (URI) and well child care audit
2. Quarterly Progress Report - October 1 to December 31, 1975. A Quality Assurance System for Ambulatory Care (QASAC) presented to California Regional Medical Program. Includes description of current status and future plans and patient care audit results for acute suppurative otitis media
3. Organizational chart of San Fernando clinic
4. Medical Encounter Summary form
5. Inpatient Length of Stay Authorization form
6. Patient Registration form
7. Registration form computer layout
8. Audit sheets for upper respiratory infection and otitis media

This documentation provided HCMS staff with descriptive information on the initial program development and activities required to meet contract obligations to CRMP. It described specific audits, the presentation of those audits to health team staff members and the audit and program objectives developed during the year (October 1974 to October 1975). Development of criteria for specific acute conditions, the medical record auditing process conducted by QASAC staff and the development of computer programs for QASAC were also documented.

Two separate site visits were conducted by HCMS staff. The first interviews included discussions with the following personnel:

1. Director, Quality Review and Utilization Control
2. Administrator, San Fernando Clinic (NVHC)
3. Registered Nurse, Research Associate, Quality Review and Utilization Control Program.

The second visit involved a three-hour meeting with the director which covered specific operational activities of the QASAC. Total interview time amounted to over seven hours, but no interviews were audio recorded. Topics covered included:

1. Staffing for QASAC
2. Development and history of the QASAC
3. Limitations to QASAC posed by NVHC practice setting
4. Operational activities between QASAC staff and medical staff
5. Medical services provided by NVHC and reviewed in QASAC
6. Administrative structure of NVHC and clinic sites
7. Computer programs developed by QASAC staff for use in program
8. Specific audit procedures used in QASAC
9. Activities of health teams in QASAC; interaction between health teams and QASAC staff within meetings where audit results are presented
10. Effectiveness of NVHC quality assurance activities
11. Relationship between NVHC corporate structure and San Fernando clinic

DOWNSTATE MEDICAL CENTER

Brooklyn, New York

SECTION I

I N T R O D U C T I O N

Downstate Medical Center (DMC) is a health service delivery system affiliated with the State University of New York. The Center provides teaching and residency services to the university medical school. Within the medical center, King's County Hospital is the major outpatient-inpatient facility serving population in the north central area of Brooklyn, New York. The Pediatric Ambulatory Service (PAS) is a major outpatient department of King's County Hospital (KCH), accounting for 90% of all outpatient visits. The focus of investigation was PAS and the PAS peer review system.

KCH operates under the aegis of the New York City Health and Hospitals Corporation (HHC), a quasi-independent public benefit corporation. The HHC Board of Directors is a legally constituted board governing KCH and 17 other New York municipal hospitals.

PAS was included in the study because it represents a typical urban medical center outpatient facility serving an inner city low-income minority population, with 450 patient visits daily. Care is provided around the clock seven days a week.

The PAS peer review quality assurance program emphasizes process review by audit of medical record content, by identification and selection of most common diagnoses, and by development of explicit criteria for process audit. A publication describing the PAS research and administrative program and the professional audits of medical records led to its inclusion in the study. In particular, the program is important because of its effort to measure the amount of time required to perform medical record audits.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The Pediatric Ambulatory Services (PAS) quality assurance program operates under a key premise: that medical records reflect the quality of medicine practiced by a single physician dealing with a single patient. While the program emphasizes a review process that uses explicitly defined standards to audit medical record contents, there is also strong emphasis on the necessity of a dialogue between provider and auditor to allow review of some aspects of care not reflected in charts.

The director of PAS expressed to study staff a strong interest in conducting research in quality assurance methods, while at the same time implementing administrative procedures. The impetus for use of the particular process audit was to determine a time-effective manner of conducting chart audits by a specific group of physicians. The director further noted that possible governmental mandate of quality assurance procedures is another key force behind program implementation.

This section will describe two phases of the PAS audit program:

1. The implementation of the formal process audit review system
2. Continuation of process audit after the formal study audit was completed

Implementation of the process audit review study began in 1973 with a committee consisting of five PAS pediatric service supervisors working under the director and available as medical consultants to the project's clerical staff whenever necessary. Their first documented activity was to outline procedures for implementing the review system as follows:

1. To identify through retrospective survey common diagnostic conditions in outpatient medical records
2. To select the most common diagnostic conditions by using frequency data
3. To develop criteria for each diagnostic condition

To conduct the retrospective survey, record room personnel retrieved records of children registered a year before the study period. The year was divided into four quarters so charts would represent seasonal variations. Every hundredth record was selected by clerical staff resulting in a total of 560 records, representing 1% of the total number of registered patients. Diagnoses were then reviewed and tabulated by rate of occurrence.

A patient's last recorded visit was used in the selection process and all secondary diagnoses were excluded. Twenty-six diagnoses were chosen after the committee excluded diseases considered minor in terms of complication rates and physical impairment.

Committee members then divided diagnoses selected among themselves to develop criteria they felt to be "most important for diagnosis and management" for the study. Once preliminary criteria had been developed, the committee met to discuss them and reach a consensus about criteria for all selected diagnoses. Criteria were then chosen upon agreement of three out of five committee members. After criteria were established, the total clinical staff reviewed and commented on criteria in two phases:

1. Prior to the implementation of the study
2. At the time of the audits

The director also said criteria were adjusted based on interaction between the auditors and the director or with the committee as a whole.

Criteria were chosen if they were:

1. Essential to the diagnosis
2. Acceptable to the majority of health care providers
3. Able to be met within the limitations of the health facility's services
4. Applicable to the majority of patients in any diagnostic category
5. Few enough in number to enable rapid review

The majority of criteria were designed to be met during a patient's initial visit, but auditors could not consider a chart deficient if criteria could only be met by subsequent visits. More physicians were not included in the criteria development phase because of the ensuing complexity and additional demands on time. The director said development could conceivably be accomplished with a clinical staff of 10 to 15 physicians, "but when you are dealing with 40 to 50 people, it gets to be an extremely difficult task to try to assemble everybody democratically."

Once criteria development was completed, audits were conducted using four medical record and process elements selected by the committee:

1. The medical history
2. Physical findings
3. Laboratory findings
4. Therapeutic management

Audits were conducted weekly using a random selection of 25 active charts, representing approximately 5% of the total patient population, or every twentieth chart transaction on the day of the audit. Audits were conducted on the same day the physician-patient encounter occurred. The normal procedure consisted of one committee member examining the chart, while a second member read criteria and noted audit results. During this two-member audit, the other four committee members observed, discussed and participated in preparation of notes for providers with noncompliant charts. All tasks rotated among committee members and, at a later stage, included the medical record librarian.

While performing the audit, each member of the review committee was timed. Results of the timing survey were as follows:

1. Two reviewers audited a single chart in 30 seconds. A single reviewer audited a chart in 58 seconds (sample of 60 charts).
2. Of 337 charts selected for review, 25% could not be completely reviewed for the following reasons:
 - a. 12.4% were grossly incomplete: Patient left before seeing provider or provider wrote "inadequate" or "no note".
 - b. 10% contained diagnoses for which no criteria had been written.
 - c. 2.7% were illegible.
3. Of the 253 charts reviewed, 47.4% were deficient in one or more criteria.
4. Deficiencies tended to occur more often in criteria related to the physical examination of the child and least often to those involving therapeutic management.
5. There was a general correlation between the frequency with which a particular diagnosis occurred and the number of chart deficiencies found for charts having that diagnosis.
6. Improvement of physician compliance with audit criteria over a five-month period could not be shown conclusively.
7. Much of the noncompliance rate was a result of incomplete data recording. As many as 38.2% of the charts could be completely corrected; 9.1% partially corrected, i.e., chart noncompliance was the result of incomplete recording of data. On contacting the responsible provider, additional data were obtained, changing the chart status to compliant.

The present review system is considered an administrative-educational tool, allowing the director to get a general view of the type of care delivered, and to know exactly what the status of care is for that portion of services covered by the audit. The current status involves two members of the original committee who conduct reviews on approximately 20 medical records per week. Audits are completed as a routine administrative function by these two physicians. No formal meetings are held to conduct audits. Further, no medical records are specially pulled for the audit. The two reviewing physicians will audit records that have been pulled, waiting for a specific physician-patient encounter to be completed on a particular day before conducting the audit. The audit will be completed right after the encounter. The schedule for review is left to the discretion of the two reviewing physicians.

Reviewers are still auditing the same 26 diagnoses identified in the formal study phase of the program. The focus remains on audit of single encounters (visits), because 70 to 80% of PAS visits are for acute conditions with no appointment. Audit results are documented in a log book, which notes the following data elements for each review:

1. Physician's name
2. Date of review
3. Chart reviewable or not reviewable

4. Chart deficiencies
5. Feedback to physician or no feedback
6. Physician reviewer

An informal note from the director's office is written to a provider when an unfavorable audit is discovered. The number of medical records reviewed over the past three years is:

1. 1973-74 - 253
2. 1974-75 - 25
3. 1975-76 - 76
4. 1976 - 81

ADDITIONAL COMMENTS

Subsequent to completion of the formal audit study, audit procedures underwent some changes:

1. The program is now conducted informally, without systematic review schedules or methologic sampling
2. There is no measurement of the time spent actually conducting audits
3. Fewer members of the supervisorial clinical staff are involved in audit activity
4. Results are documented less precisely

PAS indicated there are many advantages to the audit method of quality assurance:

1. The audit is rapid and easy to perform
2. The audit focuses on the major diagnostic conditions of the facility
3. It lends itself to performance evaluation of individual providers rather than groups
4. The informality of the system has encouraged provider cooperation

Along with the advantages of the particular system, several problem areas at PAS were also noted:

1. PAS is a large-volume ambulatory care facility. Its size is reflected in the size of the medical records, complicating any record review.
2. Many of the professional staff are on clinical rotation in teaching programs, and are only temporarily at PAS
3. PAS is an acute care facility serving a population of predominantly low-income minority families. Patient noncompliance with PAS requested follow-up is very high (40%) and patients are generally seen for acute disease and not seen again unless the problem becomes chronic or another problem has arisen
4. Due to HHC budgetary constraints, the staff size has stayed the same in the PAS for three years. The utilization rate has increased and the department does not often have time to conduct additional or extra audit and review activities.

Future expansion of the PAS quality assurance program is not planned, although the director noted a similar system is being developed for the Adult Ambulatory Services of DMC-KCH. He also expressed interest in the development of criteria that could be reviewed at a clerical level. The director is presently preparing a grant request for funds to finance further research.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

PAS provides outpatient and emergency care to 450 patients daily. The service area lacks private practitioners; over the past two decades the hospital has become the major source of outpatient care in the community. Acute, non-appointment care is the predominant type of service. The following services are provided by PAS and its affiliated hospitals (King's County Hospital and Downstate Medical Center):

- Acute and emergency care
- Pediatric and newborn care
- Pediatric surgical services
- Surgical subspecialty services (Vascular, Neuro-surgery, ENT, Ophthalmology, Plastic, Thoracic, etc.)
- Obstetric and gynecological
- Psychiatric and neurological
- Psychological evaluation
- Hearing and speech evaluation and therapy
- Social services
- Home care, visiting nurse
- Dental service
- Cleft palate center

Population Characteristics:

Socioeconomic - 35% eligible for public assistance
65% ineligible for public assistance but largely low-income

Ethnic - 70% Black
28% Puerto Rican
2% Other

Age - Children 1 day to 13 years

Residence - North Central Brooklyn 90%
Other parts of borough 9%
Miscellaneous 1%

Patients are heavily dependent on public transportation, especially bus systems. A considerable number of patients have to take two or more buses to reach the hospital. Average travel distance ranges from a few city blocks to five or six miles. Referral services tend to be at the Center with the exception of well-baby health stations located in the patient's neighborhood.

Clinical revenue for the support of PAS is distributed in the following way;

62% - Fee-for-service or out of pocket
37% - Medicaid
1% - Third party

Out-of-pocket services are essentially provided by the city through monetary grants to families. Although the fee-for-service percentage is highest, patients are billed using a sliding fee scale developed in cooperation with New York City Department of Social Services. The maximum all-inclusive fee per visit is \$41.00.

Total funding for the fiscal year 1975 was \$101,000,000. The annual cost of the medical staff is \$1,400,000. Total operational costs, which include medical, nursing and administrative staff, amounted to \$2,693,100 (Pediatric Emergency Room - \$1,561,000; Out-Patient Department - \$1,132,100).

The staff of the Pediatric Ambulatory Service (PAS) consists of 38 full-time equivalent administrative and clerical personnel, 40 full-time physicians and 25 to 30 medical students, nurses and interns who rotate through on educational programs.

PAS maintains active medical records for 50,000 enrollees. There are 175,000 to 190,000 patient encounters per year distributed as follows:

	<u>No. Encounters</u>	<u>Percent of Total Encounters</u>
<u>Pediatric Medicine</u>		
Acute Care Services	140,000	80
Follow-up	2,000	1
<u>Special Clinics</u>	4,650	3
<u>Dental</u>	3,500	2
<u>Subspecialty Clinics</u>	15,000	9
<u>Pediatric Surgery</u>	6,000	4

Pediatric services are available seven days a week, 24 hours a day. Approximately 58% of patients arrive at PAS between 8:00 a.m. and 4:00 p.m., 34% between 4:00 p.m. and midnight; and 8% between midnight and 8:00 a.m.

Hospital affairs are directed at the corporate level by the KCH Council of Executive Directors and Council of Community Boards. They also represent KCH to the President and Board of Directors of Health and Hospital Corporation.

PAS is administered and directed jointly by the administrative director, Outpatient Services, the director of the Pediatric Outpatient Department, the director of Social Services and the director of Nursing, all of KCH. The director of the Pediatric Outpatient Department is responsible for the quality of care provided by the entire group. He is assisted by two associate directors.

Five senior pediatric physicians share in supervision of emergency services. In addition, one senior pediatrician is responsible for the general pediatric clinic and one and a half full time equivalents are in charge of house staff

training. Between 25 and 30 pediatricians are assigned solely to primary care. PAS is also staffed by four ambulatory pediatric fellows, nine to ten pediatric family practice residents and interns, four to six medical students, and seven to eight pediatric nurse practitioners who are assigned solely to primary care.

The medical record used at PAS is a nonautomated chronological chart. In addition to patient and provider identification, the chart contains records of diagnosis, treatment, follow-up, lab tests, X-rays, ancillary services, medication and consultation referrals. Results of diagnostic procedures and lab or X-ray studies are recorded on continuation sheets and filed chronologically in the chart.

Identification numbers are assigned to each new patient. The patient identification system is keyed to unit record number and utilizes the Soundex Card filing-retrieval mechanism. The chart is retrieved for all visits and hand carried to the treatment area. The same chart is used for inpatient admission. All clinical services and some ancillary services are coded to facilitate identification for statistical description and billing.

PAS is housed in a facility of 17,000 square feet. The facility has 26 examining rooms, nine offices (three for physicians), a three-room dental suite, an office for social services, and a two-room laboratory. There are also conference, hearing and speech evaluation, record, surgical and medical treatment, casting and holding ward rooms.

The following is a categorized list of major equipment on-site:

- | | |
|-------------|---|
| Emergency | - Cardiac monitor and defibrillator |
| | - EKG machines |
| | - Byrd respirator |
| | - Suction machine |
| Medical | - Titmus vision tester |
| | - Vaso audiometer |
| | - Croupettes |
| Laboratory | - Coulter counter |
| | - Centrifuges |
| | - Microscopes |
| Dental | - Dental X-ray machine |
| | - Dental chairs with complete equipment |
| Educational | - Video tape machine |
| | - Projectors - movies and slide |
| | - Tape recorder |
| | - Camera |

SECTION IV

HCMS STUDY INFORMATION

The Pediatric Ambulatory Service (PAS) agreed to participate in the study in a telephone conversation December, 1975, and follow-up correspondence dated February 23, 1976. Documents compiled for PAS include the following:

1. Log sheet for the Audit Record Book, detailing results of specific audits
2. Criteria standards developed by PAS clinical staff
3. Organizational charts and administrative material describing PAS structure
4. "A Chart Audit Peer Review System in an Ambulatory Service," Russo, et al. (Pediatrics, August, 1975)
5. PAS utilization information

These documents describe some specific audit procedures, audit results and criteria developed for specific disease entities. A significant amount of information was collected during our interview with the director of PAS on March 1, 1976.

The following topics were discussed during the interview:

1. History and current status of the Review Program
2. Development of criteria
3. Review methods and techniques
4. Feedback and impact of the review system
5. Advantages and limitations of the review system
6. Distinguishing characteristics
7. Funding and staff
8. Association between practice setting and review system
9. Expansion potential of the review system

HCMS staff took additional time to review sample records used in chart review and found them substantial in size and difficult to retrieve. Apparently auditors have been able to deal with this problem.

The interview clarified the intricate details of developing and implementing a peer review system for a large and heavily utilized outpatient department. The documentation, though limited, when viewed in conjunction with the information collected during the interview, clearly delineated the operational aspects of the PAS program.

COMPREHENSIVE HEALTH SERVICES OF DETROIT

Detroit, Michigan

SECTION I

I N T R O D U C T I O N

Comprehensive Health Services of Detroit, Inc. (CHSD) was formed by the Model Neighborhood Comprehensive Health Program in 1972 as a nonprofit corporation. On November 8, 1972, CHSD was granted a preliminary Certificate of Authority under Michigan State Acts 108 and 109 of the Public Acts of 1939. CHSD began operating early in 1973 as a nonprofit prepaid health plan. It has continuously contracted with the Michigan Department of Social Services (MDSS) since 1973 to provide prepaid comprehensive health services to those Medicaid recipients who elected to join the plan. CHSD was regulated by the Commissioner of Insurance through 1973. As of December 31, 1975, it became subject to the new Michigan HMO Act 264 and is currently licensed pursuant to Act 264 while continuing to provide comprehensive health services pursuant to its contract with MDSS.

Concurrent with the ongoing operation, a planning grant application was submitted to the Department of Health, Education and Welfare in April, 1975. DHEW subsequently awarded planning grant funds in the amount of \$124,900.00 to CHSD. Currently, the group is conducting planning activities in order to become a federally qualified health maintenance organization.

As a large prepaid health care system, CHSD contracts with the New Center Medical Plaza Group (NCMPG) to provide all physician services. Additionally, CHSD employs health center ancillary staff and administration personnel sufficient to serve the enrolled population. CHSD currently serves a population of over 27,000 individuals, from a broad area of Detroit, mostly under Title XIX.

The Administrative Committee manages daily operations and is comprised of the following members: the President of the New Center Medical Plaza Group and Acting Medical Director of CHSD; the Executive Vice President and Director of the Division of Marketing and Community Affairs; the Vice President-Treasurer and Director of the Division of Business and Fiscal Affairs; the Director of the Division of Planning and Program Development Affairs; and the Acting Director of the Division of Health Center Affairs. The Executive Vice President and the Acting Medical Director are members of the Board of Trustees. The President-Chairman of the Board has no direct involvement in the daily operations.

CHSD was included in the study because of its implemented and documented quality assurance activity, and because of its conditional status, under the HMO Act of 1973, which requires further development of formal quality review.

The CHSD quality assurance program (QAP) includes use of individual performance levels as a review standard, audit of the problem oriented medical records (POMR) for completeness, and an active continuing education program.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The discussion of CHSD's quality assurance program (QAP) is divided into three areas:

1. Program described in documents supplied to HCMS staff
2. Operational activities oriented toward QAP revision of review system
3. Operationalization of medical audit procedures

BACKGROUND AND FORMALLY PLANNED ACTIVITIES

The quality assurance program was officially implemented in June, 1975, for two reasons:

1. To conform the CHSD philosophy of quality care with dignity and compliance to contractual obligations to MDSS
2. To document a formal quality assurance program in preparation for federal HMO qualification

In documentation, CHSD proposed to develop and implement an internal, ambulatory QAP allowing for evaluation of both in-hospital and ambulatory care modes of health delivery. The documentation describes four major goals of the QAP:

1. To identify the educational needs of the physician
2. To alter patterns of health care to conform with community standards
3. To provide a "feedback" mechanism to adjust staffing patterns, facilities, supplies, equipment, services, etc.
4. To improve generally the acceptability and accessibility of high quality health care to the patients

CHSD documents note that "quality assurance program(s) should be designed to meet specific needs of a particular HMO" and that specific programs can be different, but QAP results should be consistent. CHSD's program emphasizes the importance of using individual performance levels to judge the quality of care in a total system. Performance levels can be compared with national data to judge quality of care, using the following parameters:

1. Number of patients examined and treated per hour
2. The amount and appropriateness of laboratory and X-ray procedures
3. The number of referrals to other specialties
4. The number of referrals to ancillary professional personnel such as nutritionists, social workers, nurses, etc.
5. The use of a formulary and generic prescribing habits

The documentation also notes two general areas the QAP should favor:

1. Auditing the completeness of the medical record (use of POMR)
2. Documentation of continuing education activities by physicians

The Medical Council has specific responsibilities, one of which is to evaluate contracts with physician service groups delivering medical services, and to document the quality of these services. The cornerstone of the QAP is the contractual obligations the physician service corporation has for conducting certain review activities. The specific QAP responsibilities of the Medical Group are:

1. To provide audits of medical records
2. To develop and perform a quality assurance audit
3. To receive and review professional activity data, problems, grievances, and recommended corrective measures

The Medical Council, composed of chiefs of medical services and key administrative personnel, elects its own Chairman and Vice-Chairman and develops its own rules and regulations for approval by the CHSD Board of Directors. The Medical Director and Executive Vice President are ex-officio members of the Council, participating in discussions only. Terms for members last six months and are staggered to insure continuity of philosophy and action. The Council meets monthly.

After the audits are completed by the Quality Assurance and Utilization Review Committee, the Medical Council reviews those medical records where a variance of standards has been determined. On the basis of the audit and Council decision-making, the Council recommends corrective action. Subsequent to the corrective action, the Audit Review Person must supply the Council with data to determine the effectiveness of the action.

Finally, the Council must submit a written report to the Board of Directors about the audit program.

The last area of quality assurance documentation deals with the activities of the Audit Review Person, and the auditing of medical records. These were carried over to the operational program, and are discussed below.

OPERATIONAL ACTIVITIES

Operational activities are divided into two areas: (a) quality assurance system revision, and (b) implementation of audit procedures.

System Revision

Although the documentation noted no effort to educate physician staff to quality assurance methods, the Medical Director did conduct a literature review of quality assurance material, forwarding certain articles to medical staff

members. He also held discussion meetings with staff members to begin building support for an audit program.

Other operational activities preceding systems revision included:

1. Meetings with clinical staff regarding development of specific quality assurance program elements
2. Establishment of a Medical Audit Quality Assurance Committee

Subsequent to these organizational activities were:

3. Two formal audits of medical records
4. First Medical Council Meeting (February)

The Medical Audit and Quality Assurance Committee (QAC) was organized to concentrate operational activities in a smaller and more specific administrative unit (rather than the Medical Council). This committee is comprised of five physicians, plus the Medical Director, the Medical Records Librarian and the Director of the Social Work Services Department. This committee convenes once a month, usually for two hours. Its duties and responsibilities are similar to those planned for the Medical Council except that specific recommendations for corrective action can be implemented readily because departmental barriers are removed.

The results of system revision reflect expanded committee activities:

1. Receive standards set by department and other services;
2. Receive information relative to problems identified by departmental and other audit committees, or by consultants; receive complaints, etc., not within the lines of the department identifying suboptimal performance;
3. On occasion, institute its own interdisciplinary, interservice comprehensive review for identification of problems overlooked by other methods of problem identification;
4. Refer identified problems received or discovered to the appropriate department or departments for standard setting or other action;
5. Set standards which involve the entire delivery system, after their ratification by medical staff;
6. Determine the priority of standards to measure compliance;
7. Affirm or modify data collection proposals;
8. Affirm or modify assignments to Audit Review Person and receive reports from Audit Review Person;
9. Through normal channels, recommend a timetable for improvement activities by the appropriate agent, and receive confirmation that action has occurred. These recommendations for attention may result in actions in the form of education, system changes, purchasing, or economic or professional sanctions.
10. Make results of progress available to appropriate executive bodies;
11. Keep medical staff informed of standards and progress in achieving them;
12. Select date for next study or follow-up review based upon the recognized need for a planned cycle of study.

The role of the Medical Council in quality assurance is to implement recommendations from the Medical Audit Committee. The role of the Council, consisting of supervisory, administrative and medical personnel, is to set policy for quality assurance, to interact with other administrative committees (e.g., Administrative Committee) and to gauge overall performance of CHSD as reflected in data from audits.

Audit decision-making occurs within the Medical-Audit Committee. The Medical Director is extremely active in all facets of the audit program, and prepares reports to the Medical Council on specific audits. Discussions about the implications of certain audits occur within the Medical Council. Because of the developmental nature of the program, the Medical Director is depending less on committee actions than on his own activity.

The Audit Review Person's (ARP) main responsibility is to conduct the in-patient utilization monitoring, inpatient medical care evaluation and referral monitoring. She collected data for all cases involved in the hypertension audit, and also conducted the audits. The ARP indicates she conducted the audits based on instructions from the Medical Director and reported results directly to him.

The operational system revision directly affected the type of review process implemented, although the procedural elements of the audit system remained as outlined in planning documents. The Audit Review Process (Plan) consists of five steps as follows:

Step 1: Problem Identified by Medical Audit - QAC. A study group consists of patients having some common characteristic. The group must be defined and time period must be chosen so a reasonable number of cases can be studied. Dates must be set for adoption of pattern standards, data retrieval and completion of study.

Step 2: Pattern Standards and Monitor Parameters established by Chiefs of Services. A pattern standard is a percentage indicating how often a given justification of outcome or process value occurs per 100 patients of care given. "Monitor parameters" are those selected parameters which are checked at regular intervals.

Step 3: Audit Review Person reviews medical record for problem. The manner of review is designated by the Medical Council. Comparison of the medical records with the temporary standard disease protocol allows the Audit Review Person to identify on a preliminary basis records which may fall into the following categories:

1. Superior Care
2. Standard Care
3. Inferior Care
4. Deficiencies due to special circumstances, e.g., unavailability of certain facilities, etc.
5. Deficiencies due to lack of knowledge
6. Deficiencies due to incomplete performance

Step 4: Chart sent to Medical Audit - QAC for review and determination of compliance regarding standard of care.

Step 5: Recommendations are made by Medical Audit - QAC and sent to the Medical Council where action is taken at the Medical Staff, Administrative Staff, or Board of Directors level.

At meetings subsequent to the submission of recommendations, the Audit Review Person provides assessment of the effectiveness of the action taken to correct the identified deficiencies in medical care.

Implemented Audit Procedures

Two quality review audits were conducted at CHSD. The first was conducted in September, 1975, to evaluate the problem of hypertension according to explicit and implicit criteria. The second audit, February, 1976, evaluated medical charts using implicit criteria.

The decision to conduct both audits was made by the Medical Director. The QAC was not consulted for selection of the review topic. The Medical Director indicated his responsibility focuses on initially developing and implementing the QAP which requires him to take a strong role in the entire program.

The hypertension audit involved establishing criteria for the treatment and diagnosis of hypertension patients. A total sample of patients' medical records (150) containing the diagnosis hypertension was pulled for review by the Audit Review Person. The ARP reviewed the charts herself, noting the number of specific cases where services for hypertension were not provided. The ARP, an RN, indicated she employed some medical judgment in the review, though an explicit outline was used. The following data were reviewed: age, sex, weight, height, blood pressure, past history; plan of treatment; physical findings; and lab tests. Certain charts were not forwarded to the QAC for review, but went directly to the Medical Director for review. On the basis of study staff review of minutes (September 16, 1975) it appears some blood pressures were being recorded inaccurately.

Feedback consisted of a memorandum from the Medical Director to the two RNs responsible for taking blood pressures throughout the clinic. Enclosed with the memorandum was the standard pattern of care for hypertension as adopted by the QAC. No resample or reaudit was conducted to determine if patterns of care had changed as a result of the review.

In the second operational audit, medical records were pulled for review by the committee from scheduled appointments between the hours of 3:00 to 5:00 p.m., February 13, 1976. This audit, conducted by the QAC, required committee physicians to make a comprehensive assessment of the total medical record by commenting on any aspect of the medical record on a blank sheet of paper. Comments were aggregated for review and several suggestions were made, for example:

1. To the medical record librarian with regard to alerting physicians when records were incomplete.
2. To physicians regarding the legible signatures and suggestions pertaining to the patterns of care for patients. Apparently no follow-up was done to determine a change in behavior as a result of the review.

CHSD personnel noted the Michigan State audit was scheduled to take place on April 14, 1976, to accomplish the following three things:

1. Facility Division would examine the structural aspects of the facility
2. Ancillary Service Contracts were to be reviewed, approved or disapproved
3. A random sample of 500 medical records was to be reviewed (eight audit items)

CHSD personnel view these external audits as part of their overall quality assurance effort.

ADDITIONAL COMMENTS

The CHSD quality assurance program is in its initial stage of implementation. Though the provided documentation presented a fairly coherent system, actual operations were affected by many administrative factors. It is difficult to document the complexity of such interaction in development of a new program.

Unique characteristics or problems in implementing QAP were described as follows:

1. Limited amount of time Medical Director and physicians on the Audit Committee can give to development of the QAP
2. Accessibility of sources available for commitment to the QAP
3. Coordination between the Audit Coordinator, Audit Committee, Medical Director, Medical Council, Administrative Committee with regard to getting institutional commitment for a formalized QAP
4. Difficulty in getting staff physicians together for peer review meetings
5. Priorities of the CHSD delivery system are oriented toward achieving quality health care with sensitivity to cost containment while maintaining overall fiscal viability.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

CHSD is comprised of two distinct organizational entities: The Comprehensive Health Services of Detroit and a physician provider service group (New Center Medical Plaza Group, Inc.). CHSD contracts with the physician group to provide all medical services to a defined population. Everyday operations are carried out by an Administrative Committee comprised of the following: the President of the New Center Medical Plaza Group and Acting Medical Director of CHSD; the Executive Vice President and Director of the Division of Marketing and Community Affairs; the Vice President-Treasurer and Director of Division of Business and Fiscal Affairs; the Director, Division of Planning and Program Development Affairs; and the Acting Director, Division of Health Center Affairs. They have specific functions and are jointly responsible to the Board. The President-Chairman of the Board has no direct involvement in daily operations. The Administrative Committee relates directly to the Board of Directors and implements policy mandated by Board action. The Vice Presidents and Medical Director are appointed by the Board. The organizational structure complies with the Michigan State Law relating to HMOs. The governing body comprises nine board members, consisting of three subscribers, three persons from the business community, and three providers, thus one-third of the governing board is represented by enrollees of CHSD.

In addition to the prepaid capitation contract there is also a minimal fee for service income. CHSD has derived its major income from contracts with government agencies and a grant from Hill-Burton.

The services provided by CHSD include the following:

1. Complete inpatient hospital and emergency room services
2. Diagnostic, treatment, preventive and rehabilitative physician and nursing services
3. Comprehensive health examinations and other screening tests
4. Immunizations as required by needs of enrolled member
5. Complete podiatric services
6. Complete family planning services
7. Laboratory and X-ray services including diagnostic and therapeutic radiological procedures
8. Pre- and post-natal care
9. Eye exams, refractions for glasses and eye glasses
10. Prescription drugs prescribed by CHSD physicians
11. Emergency ambulance service to centers and other affiliated facilities when ordered by authorized center staff
12. Pharmacological services, including coordination of and individualized counseling service to members for drug related problems

13. Health education
14. Social work services
15. Rehabilitation services, including physical, occupational and speech therapy
16. Nutritionist, dietetician and home economist services
17. Outpatient visits to psychiatrists upon referral
18. Prosthetic appliances when prescribed by CHSD physicians
19. Basic mental health services providing outpatient evaluation; crisis intervention services; and consultation and individual and group therapy limited to 10 visits

The Physician Provider Service Group is composed of 15 FTE physicians in the primary care specialties, eight consultants in the various specialties; and two physician's assistants. Other specialties are on a session or referral basis. When those specialties on a dollar volume indicate payment approximates half time, arrangements are consummated to bring that specialty in house.

In addition to the consultants who spend sessions at either one or both centers, the New Center Medical Plaza Group arranges for a consultant panel to see those members who have a highly specialized or emergent problem that cannot be properly handled on site. The specialists covered in the consultant panel who are paid on a fee for service basis, based upon established screens, are as follows:

1. Orthopedic Surgery
2. Psychiatry
3. Radiology
4. Urology
5. Allergy
6. Pediatric Allergy
7. Cardiac Surgery (Pacemaker)
8. Cardiology
9. Cardiovascular and Thoracic Surgery
10. Child-Adolescent Psychodiagnostic and Psychotherapeutic Services
11. Dermatology
12. EENT
13. Endocrinology
14. Hand Surgeons
15. Gastroenterologist
16. Hematologist
17. Neurologist
18. Neuro-Surgery
19. Oncology
20. Ophthalmology
21. Oral Surgery
22. Proctology
23. Physical Medicine
24. Pulmonary Medicine
25. Radiation Therapy
26. Rheumatology

The distribution of physicians by specialty is as follows:

	FTE	Half-Time	Consultant (Session)
Internal Medicine	4	4	1
Pediatrics	4	-	-
General Surgery	2	-	-
Optometry	2	-	-
OB-GYN	3	-	- (Schaefer)
Podiatry	1	-	-
ENT	-	-	1
Neurology	-	-	1
Orthopedic Surgery*	-	-	- (Schaefer)
Psychiatry	-	-	1
Radiology*	-	-	- (Schaefer)

*It should be noted that Orthopedic Surgery and Radiology services are available at the Schaefer Center and not the New Center Plaza at the present time. It is important to note members are referred where practical to the Schaefer Clinic, likewise members are referred to the Plaza Center for those services not available at Schaefer.

Approximately 5-6% of the 27,000 patients are Medicare recipients. The majority of this population is from the center city area of Detroit.

The majority of the CHSD payment for services comes from the prepaid capitations from Medicaid. A very limited amount of payment is fee-for-service.

In addition to completing the medical record for each patient-physician encounter, an encounter form is completed for one reason: statistical information gathering.

The medical records contain the traditional chronological clinic sheet. They are filed by terminal digit and are color-coded for different categories. The records are divided into four sections:

1. Progress notes
2. Prescription sheets
3. Tests - lab, X-ray, EKG, etc.
4. Patient information Outside Reports

PHYSICAL LAYOUT

The New Center Plaza Clinic occupies the former Gold Key Inn where a portion of its 65,000 square feet has been converted into a health center.

The Schaefer Clinic, located in Northwest Detroit, has approximately 7,000 square feet and is a primary care satellite unit of CHSD.

AFFILIATIONS

CHSD has several hospital and other provider affiliations through which services are provided.

1. Relationships exist with seven hospitals within the CHSD service area. CHSD's contracting Medical Group's physicians enjoy staff and admitting privileges within at least one of the affiliated hospitals - combined they have privileges at all affiliated hospitals.
2. Affiliations with three nursing homes.
3. The VNA and Homemaker Services of Metropolitan Detroit provide services for CHSD on a contractual basis. Public Health nurses (employed by CHSD) also make home visits.
4. Pharmaceutical services are provided by 33 community pharmacies. An on-site pharmacy is in the developmental stage.
5. Referral sources for substance abuse and alcoholism treatments are available in the community for CHSD enrollees. The Henry Ford Hospital Pallister Clinic is one of these resources.
6. Extensive interplay with various governmental agencies.
7. Michigan State Department of Social Services.
8. Detroit Department of Health.
9. American Arbitration Association.

LIMITATIONS OF THE DELIVERY SYSTEM

1. Problems encountered by CHSD with regard to the financial status. Medicaid reimbursement has dictated how much service will be provided to a specific population within a specific time period.
2. The turnover rate of the medical staff. Although it is not high it is quite unpredictable. Dr. Batchelor was forced to recruit several foreign medical graduates to stabilize the provider group. The problem appears stable at this time.
3. The Plaza Center was formerly a motel that was converted into a medical center. Delivery of service did not require utilization of all the available space; excess space was leased to Henry Ford Hospital on a short term basis.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

Comprehensive Health Services of Detroit was considered for the study when HCMS staff discovered their application for an HMO Grant and documentation therein regarding implementation of some quality assessment activities. CHSD agreed to participate in a study during a telephone discussion on December 8, 1975. HCMS reviewed and compiled initial documentation on January 27, 1976.

The documentation received prior to the site visit of February 19, 1976, is as follows:

1. Developmental Grant Application to become a qualified HMO (March 31, 1975), 600 pages
2. Minutes for Quality Assurance Committee (September 26, 1975);
3. Medical Record Audit Sheet
4. Responsibilities and Procedures for a Medical Audit Procedure
5. Full charge to perform retrospective study of hospital utilization
6. Chart on length of stay and QA
7. Medical Record Audit Committee, appointed members and ex-officio members
8. Duties and responsibilities of the Medical Record Audit and Quality Assurance Committee
9. Medical Council Membership
10. Technical service form; the number of hours worked per week by physicians
11. Total number of patients scheduled, walk-ins, no shows, cancellations and the number of patients actually seen by physicians on a weekly basis
12. Staff roster for CHSD

The documentation described the program well, but was somewhat dated, and lengthy. At times it was difficult to distinguish the precise and critical points of the development. More information pertaining to current and operational aspects of the CHSD-QAP would be useful.

The site visit was conducted by HCMS staff on February 19, 1976, and included interviews with the following personnel:

1. Executive Vice President and Director of Marketing and Community Affairs
2. Acting Director of CHSD and President of the New Center Medical Plaza Group
3. Audit Review Coordinator
4. Administrative Assistant
5. Director of Research and Development
6. Director of Medical Records Department

The interviews were not audio recorded and site investigators spent approximately seven hours in discussion with CHSD personnel.

The following topics were covered during the interview:

1. Development and goals of the QAP
2. Interplay between CHSD's Physician Service Group and CHSD Administration in the development of the QAP
3. Staff functions and responsibilities
4. Michigan Department of Public Health audit
5. Funding for CHSD and QAP
6. Operational level of the QAP
7. Review procedures for quality assurance
8. Organization of QAP
9. Unique characteristics of CHSD
10. Future plans for the QAP

Quality assurance policies are developed by the Acting Medical Director and the physicians on the medical Audit Committee. The Acting Medical Director and the Executive Vice President provided most information on the present status (developmental and operational) and future plans for quality assurance, whereas the other interviews provided information pertaining to actual quality assurance and related activities.

MARTIN LUTHER KING HEALTH CENTER

Bronx, New York

SECTION I

I N T R O D U C T I O N

The Dr. Martin Luther King, Jr., Health Center (MLK) is a large multi-specialty neighborhood health center originally funded by the Division of Health Affairs, Office of Economic Opportunity. At present, MLK is advised by an incorporated nonprofit Community Advisory Board and controlled by Montefiore Hospital. The affiliation with Montefiore was stipulated in the original OEO grant and still exists. MLK is currently funded, in part, by a large Bureau of Community Health Services grant.

MLK has been serving its target population since August, 1966, offering services in 14 specialty areas, although the primary goal is to provide family-oriented, team-centered comprehensive health services of high quality to residents of South Bronx, New York. Specific geographic areas are designated to be served by MLK health care teams. MLK is administered by a project director, who receives advisory and policy input from the Community Advisory Board and Montefiore Hospital and Medical Center. The immediate organizational scheme under the project director's office is: (1) the director of health services, (2) the administrator and (3) the director of training. The Health Care Evaluation Committee (HCEC) in the department of Health Services has operational responsibility for quality assurance activities and held its first meeting February 15, 1971, after an extensive development period.

Quality assurance at MLK centers around determination of patient satisfaction, unusual episode review, process audit of charts, and outcome audit.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The discussion of MLK's quality assurance program is divided into two major sections:

1. Background
2. Quality assurance program components formally described in documentation supplied to study staff and in operation as of February 15, 1976

Information sources for No. 1 above are MLK documents; however, some interview data are used to add information dealing with other planned activities. This information is added only to documented areas, not to newly planned areas of activity. Information sources for No. 2 are interview data, documents, and review of the Health Care Evaluation Committee minutes.

BACKGROUND

The Health Care Evaluation Committee (HCEC) has operational responsibility for quality assurance activities, as well as decision-making regarding review results conducted jointly with the director of health services. This committee, originally entitled the Medical Care Evaluation Committee, was established in February, 1971. The goals were to evaluate and monitor the quality of family care and to make recommendations to practitioners for improving quality of care.

The history of the committee began with meetings of an ad hoc group of 28 staff personnel concerned enough with the quality of care to discuss prospective methods and operations of a quality assurance program. Because of the heterogeneity of this group and its lack of specific direction, formal action was not taken on most issues raised. An MLK researcher who was a principal force in this original committee made certain recommendations concerning the importance of health care evaluations, good record-keeping in charts and acceptable practice norms to the Community Health Advocacy Department (CHAD). CHAD had the responsibility to take action, in conjunction with the ad hoc group, on recommendations made for quality assurance methods and activities. After a period of interaction, checklist audit forms were devised based on recommendations from a number of ad hoc committee members. The format of these forms and the methodology that was concurrently developed eventually led to the establishment of the present audit processes.

At this juncture in the development of quality assurance activities, Dr. Lawrence Weed, the developer of the Problem Oriented Medical Record (POMR), visited the center and spoke to various departments about the use and implementation of his system. After a series of discussions between practitioners and administrators, a modified POMR with a problem list for each chart was adopted. Implementation of the POMR is important in the development of quality assurance activities because the record must be audited to insure proper implementation of the system.

After POMR implementation, an audit sheet was designed as an objective appraisal of family as opposed to individual medical records and was used as the sole tally sheet for the audit procedures. This audit process failed to specify several important variables including the size of charts, number of individuals in the family folder, and time frame of care or interval between visits. Committee members reviewed charts, wrote in their findings and reported this information in weekly committee meetings. In using the procedure, it became apparent that approximately 42 charts could be reviewed per year, and that some teams would be audited more frequently than others. With these problems in mind, the HCEC undertook a reorganization of the review procedures.

This reorganization was to focus on two major changes:

1. Development of a new audit form
2. Change in review procedures: health care teams would begin reviewing each other's performance through the medical record audit

HCEC hoped these revisions would lead to an increased number of medical record reviews, a more effective educational experience for the health teams, and an increase in self-awareness on the part of the teams.

One HCEC member undertook the responsibility to draft new protocols and provide a more complete list of audit components for the chart reviews. Documentation noted that once the new form was developed by this member, the whole committee met to approve the form. After discussion, some minor changes were made and the committee voted to adopt the new form.

In terms of the major revision, the committee decided one health team should review another team's performance. For example, the Family Health Worker (FHW) in Team A might review the FHW notes in charts from Team B and internists from Team A might review internist charts from Team B. Reviewers and those reviewed are required to sign the review report, allowing the HCEC to be sure the parties have met and discussed the review. To be selected for review, a family record must have at least six individual charts in the folder and there must be at least one adult and one pediatric chart. Individuals have to have been seen within the previous 12-month period. The secretary of the HCEC is responsible for assigning the random charts. The senior FHW is responsible for: (1) getting the charts pulled, (2) assuring the review within the team is completed, and (3) reporting the names of procrastinating reviewers to the HCEC.

At present, the HCEC is composed of eight full members, two exofficio members and one member involved as needed. These positions are currently filled by the following personnel:

1. The Chief of Internal Medicine
2. The Chief of Pediatrics
3. The Chief of Dentistry
4. The Chief of Nurse Practitioners

5. The Chief of Family Health Workers
6. The Chief Pharmacist
7. The Patient Rights Advocate
8. The Secretary
9. The Director of Health Services (exofficio member)
10. Assistant Director of Health Services (exofficio member)
11. The Chief of Obstetrics and Gynecology

Plans were originally made to include a representative of the Community Advisory Board in HCEC activities, but this was impossible to arrange since HCEC meets during working hours.

Strict confidentiality concerning HCEC meetings and actions is enforced, and it is made clear to members that any breach of this confidentiality could serve as a basis for dismissal from the committee.

Formally Planned and Implemented Activities

This section is taken largely from the introductory chapter of a Health Care Evaluation Manual, to be published by the MLK Health Center shortly. The documentation indicated HCEC meets once a week for two hours to evaluate medical service by means of input from four sources:

1. Determination of patient satisfaction
2. Unusual episode review
 - a. Deaths
 - b. Restrictions of antibiotic usage
 - c. Patient complaints
3. Process Audit through Chart Review
 - a. Chart standardization
 - b. Single disease entity review
 - c. Comprehensive family chart review
4. Outcome audit

The documentation notes the specific outline for each area and its designed use.

Determination of Patient Satisfaction

MLK has developed a simple questionnaire to periodically sample (randomly) the total patient population to determine patient satisfaction with practitioners and other MLK personnel. Response rate to these questionnaires has been poor and has given MLK only a limited amount of information.

Unusual Episode Reivew

This type of review is designed to be a systematic check of undesirable outcomes or unusual usage of certain medications.

Deaths. All deaths that come to the attention of any team member must be reported on a special form to the HCEC. In addition, the

New York City Medical Examiner's Office sends the HCEC a list of autopsied persons who were MLK members at the time of death. Regardless of method of notification, it is mandatory the team obtain as much information as possible concerning the death (e.g., narrative details from observers, a medical examiner's report, a hospital summary, a hospital autopsy report). This procedure, coupled with chart review, is used to establish whether any oversight or lack of follow-up may have led to the death.

The same form may be used to report a serious drug reaction. This is designed to determine if medical practice changes are necessary to prevent recurrences.

Restriction of Antibiotic Usage. MLK felt that use of certain antibiotics should be restricted because of potential toxicity, high cost of the drug or limited therapeutic indication. Also present was the concern of increasing resistance to antibiotics in certain organisms. A form to collect data to restrict the use of cephalosporins, clindamycin, and trimethoprim/sulfamethoxazole was developed by the chief pharmacist and was approved by the physician groups. Monitoring is performed by the Formulary Committee and unusual usage of these medications is reported to the Health Care Evaluation Committee. If the reasons for usage are considered insufficient, the chief of service resolves the issue with the practitioner involved.

Patient Complaints. Patient complaints often lead to the uncovering of poor technical care or insensitivity in delivery of care. The documentation indicates a full-time patient advocate is employed to hear patient complaints and discuss them at HCEC meetings. Patients are informed of this complaint procedure through a booklet, "Your Rights as a Patient," which they receive at registration. Such investigations can be highly controversial, but MLK personnel note most issues are resolved and lead to better communication between patient and practitioner. In cases of gross insensitivity on the part of a physician, dismissal can occur.

The documentation notes several problems when review only examines unusual incidents as a technique for maintaining quality of care. First, only the most severe errors are usually found. Second, a physician may feel he is being selected unfairly by the HCEC since the investigation of unusual incidents is not a random process.

Process Audit. The purpose of this type of audit is to examine charts "as a reflection of treatment patterns both for specific diseases and for total patient care." The documentation notes three areas of activity under process audit: chart standardization, single disease review, and comprehensive family chart review.

Chart Standardization. Several years ago, the problem-oriented medical record (POMR) was instituted at MLK. Problem sheets, flow sheets, and Subjective Objective Assessment Plan (SOAP) notes were required. To insure correct usage of the POMR, audits were performed by medical assistants on charts selected in random fashion.

Three simple questions were asked:

1. Are all problems including health maintenance dated?
2. Does the most recent progress noted (by practitioner being reviewed) have each problem preceded by a title?
3. Does that progress note have all problems written in SOAP format?

In terms of the specific methodology, a scoring system has been devised to produce an objective measure of the practitioner's performance and adequate use of the POMR. This clerical audit involves the following steps and score sheets (outlined below):

1. The medical assistant reviews patient charts that contain a progress note and the problem list and answers the three questions on the POMR Evaluation Score Sheet (Figure 1).
2. The audit is then given to the unit manager for scoring (Figure 1).
3. Unit managers keep all scored audit sheets and are responsible for insuring that all medical assistants do five audits per week and that each physician and nurse has between three and four charts audited per week (Figure 2).
4. The average score per chart for each practitioner (MD or RN) is calculated by the unit manager on a quarterly basis. Each practitioner is informed of the average score. If anyone's average is less than 4.0 he or she is offered additional training in the POMR. If practitioners wish, they can be referred to the senior family health worker on the team or her representative for such training.

The only incentive for provider change was competitive peer pressure to achieve higher scores. No objective assessment has yet been made to assess the value of this type of chart audit for producing more problem oriented charts; however, MLK staff feel there are fewer charts with inadequate problem lists and nonproblem-oriented notes.

Single Disease Review. Another level of review noted in documents deals with particular disease conditions. This review assumes the medical records are accurate, and thus auditable, since accurate charts should be a result of the chart standardization audit process.

This review activity requires the HCEC to select a disease entity (no formal selection process), to establish criteria for treatment or management and to audit the performance of providers by comparing medical record information with the criteria.

FIGURE 1

POMR EVALUATION SCORE SHEET

	<u>CODE</u>
Chart Number Reviewed _____	_____
Physician/PHN _____	_____
Date of Most Recent MD/PHN Visit _____	_____
Reviewer _____	_____
Date of Review _____	_____
1. Are all problems including health maintenance dated?	Yes/No _____
2. Does the most recent progress note (by practitioners being reviewed) have each problem preceded by a problem title?	Yes/No _____
3. Does that progress note have all problems written with SOAP format?	Yes/No _____

FIGURE 2

FORMAT FOR UNIT MANAGER'S SUMMARY OF CLERICAL AUDIT DATA

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Average
RN or MD A	0	4	4	6	8	10	8	4	6	6	4	10	10	0	6	2	8	10	5.9
MD B																			
MD C																			

The only single disease review occurred in 1972 and 1973, when a Venereal Disease Committee was established to review the diagnosis and treatment of gonorrhea. The committee researched and developed a specific protocol for diagnosis and treatment, then audited a number of medical records to determine the performance levels of providers. Performance levels were expressed as scores given to providers based on satisfying specific protocol requirements. Scores were expressed as the frequency of use of specific protocol items, reflecting adequacy of diagnosis and treatment.

MLK states that single disease review as an approach to assuring quality of care is somewhat limited. In general, one concentrates on the technical aspects of treatment of the disease. Further, evaluation of the practitioner's sensitivity as to what such a disease means to the patient or to his social setting is usually impossible to analyze from a single encounter in the chart.

Comprehensive Family Chart Review. The basis of this type of process audit is the periodic review of family medical records chosen at random. The selection process is done by a secretary of HCEC. The chart review is performed by one team (internist, pediatrician, nurse practitioner, family health worker) or another on a monthly basis. A standardized audit form and instructions have been designed to monitor several items:

1. Use of POMR and inclusion on problem list of all problems
2. Adequacy of health maintenance procedures
3. Adequacy of data base, assessment, treatment and follow-up for each health "problem"

The documentation notes that for such audit work, certain standards for most problems have been worked out and approved by the appropriate professional group. These standards are used to provide a sense of peer expectation, which is the basis of discussion of differences between reviewer and reviewed. For example, minimal health maintenance schedules must be approved by pediatric and internist groups, so that items can merely be checked off as done or not and properly dated.

1. Family Audit Form
2. Internal Medicine Review Form
3. Pediatric Review Form

The Family Audit Form is a four-page summary of the findings gathered from all charts of the entire family. The Internal Medicine and Pediatric Review forms are one-page worksheets to be used for individual charts.

The Internal Medicine and Pediatric worksheets are divided into four sections: Patient and Reviewer Identification, Health Maintenance, Disease Management and an Overall Assessment.

Patient and Reviewer Identification. This section is self explanatory.

Health Maintenance. The health maintenance section is a tally sheet for indicating whether specific requirements of health maintenance protocols have been followed. It can be reviewed by any team member. Items which have been done can be so indicated by checking the "yes" box and placing in the box the most recent date when the test or procedure was performed. Space is available under "comments" for clarification.

Disease Management. This part of the form is completed by a physician or a nurse practitioner and physician. The reviewer placed in the boxes labeled "Health Problems" the items written on the problem sheet of the chart. For each of these problems he can then indicate by checking the YES column that the problem is on the problem list, and in the YES or NO column whether there is an adequate data base, assessment, and follow-up treatment. If any of these areas are inadequate, the reviewer must check NO and document the opinion by commenting in the adjacent free space. In reviewing a chart, a physician may find that several problems have not been placed on the problem list. In this case, the unrecorded problem is written in the health problem box and NO is checked after it.

Overall Assessment. The physician uses this space for his general assessment. Here recommendations for improvement are made to the reviewed physician and entire health team. Equally important comments of praise for good care can be made here as well.

Comments should include:

1. Adequacy of health maintenance to date, tests needed to be done
2. Use of problem-oriented notes and problem sheet, specific comments
3. Disagreements concerning diagnosis, follow-up and treatment

Comments in the "Overall Assessment" may be typed verbatim onto the Family Audit Form under the section "Review Summary of Individual Family Members." In discussing the chart review with the reviewed team, the reviewing team uses these worksheets to document findings.

After the formal review of a family chart, the reviewing team must discuss findings with the reviewed team. It is at this point that differences of opinion are discussed and documented. After this interaction, the health team review results are sent to the HCEC for final review. If the chiefs of service find any inadequacy in the review, they then discuss the review with reviewer, reviewed or both. Final follow-up of reviewed problems is referred to the director of health services.

Family chart audits have been performed at MLK almost monthly. This allows review of approximately 12 charts per team (there are eight teams) per year and is used as an educational tool for team members. Such an audit occasionally identifies a practitioner who consistently performs poorly. Such a person may have an intensive review of charts performed by the chief of his service and be given a warning notice of termination or suggestions for improvement and a date for reevaluation.

Some problems with a comprehensive family chart review have been noted by MLK personnel. First it requires extra effort on the part of teams to perform the review itself and then to find time to discuss the review with tightly scheduled members of the reviewed team. It takes weekly meetings of the HCEC and constant checking of chart reviews by the chiefs of service. A significant factor is the small number of charts actually being reviewed through this process (88 charts were reviewed during the past year).

Outcome Review. The single disease entity whose outcome is presently under review is hypertension. This study, partially operational now, is designed to accomplish the following goals:

1. Screen adult charts at MLK to see what proportion of hypertensive patients are under adequate control
2. Develop a manual system for more careful follow-up and surveillance of all hypertensives at MLK
3. Prove that such a system will improve the percentage of hypertensive patients with controlled blood pressure at MLK
4. Develop a community participatory patient education project
5. Prove that such an educational project will further improve control of blood pressure in hypertensive patients beyond that achieved by the surveillance system
6. Generate more patient visits to MLK by assuring hypertensive patients are more carefully followed. Better utilize nurse practitioners in following hypertensives.

Periodically a list of physicians, nurses, and family health workers will be published with the percentage of their hypertensive patients whose blood pressure is under control. It is hoped that the peer competition will work to increase the fraction of hypertensives with controlled blood pressure.

MLK personnel identified several problem areas in all quality assurance activities, including:

1. The difficulty of keeping health teams interested in conducting reviews
2. Assuring review teams the audit is a worthwhile endeavor
3. Selecting the type of sanction to use for noncompliance
4. Gaining cooperation among providers in identifying specific problems for study

ADDITIONAL COMMENTS

Quality assurance activities at MLK are at many stages of implementation. The documentation of operational areas was limited, and site investigators depended on separate interviews to establish operational status. Generally, activities noted in documents and interview data were being implemented.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The Martin Luther King Health Center delivers a comprehensive set of medical services using the internist and pediatrician as principal primary care physicians on health teams. A typical health care team includes:

Family Health Workers	4
Public Health Nurses	1½
Pediatricians	1
Internists	1½
Secretary	1
Dentist	1

A typical unit serving two teams includes:

Medical Assistants	7
Receptionists	3

There are eight teams at MLK each serving a population of about 11,700 registered families.

In addition to the primary care physicians working within a health team, 12 specialties are offered at MLK. They are:

1. Dermatology
2. Ear, Nose and Throat
3. Allergy
4. Podiatry
5. Obstetrics and Gynecology
6. Electrocardiography
7. Orthopedics
8. Ophthalmology
9. Psychiatry
10. Surgery
11. Speech and Hearing
12. Dentistry

The patient population served by MLK is primarily of lower economic background. Sixty percent of the population is black and approximately forty percent is Puerto Rican. Based on the most recent comprehensive statistics available (1973) from MLK, the population may be broken down as follows:

<u>Patient Information</u>	Residents in area served	90,000
	Individuals in households registered and receiving care in past year	29,000

	Maximum distance to main health center by blocks	13
	Percentage of patients living within five blocks of main health center	80
	Patients registered per team	3,600 - 5,800
<u>Patient Services</u>	Visits to Health Center	182,000
	Health care units	84,000
	Emergency room screening	49,000
	Specialty Unit	27,000
	Dental Unit	22,000
	Home visits by family health worker	40,000
	Pharmacy prescriptions	221,000
	Lab exams	96,000
	X-Rays	20,000
	Transportation for disabled	12,000
<u>Staff (FTE*)</u>	Total number of employees	432
	Health Services	329
	Administration	90
	Community Health Advisory	7
	Training	6

A large proportion of the staff is black and Puerto Rican (90%) and approximately half of the patient contact staff speak Spanish.

REVENUE SOURCES

MLK is financed primarily by a Community Health Services grant of approximately \$3,000,000 and through Medicaid capitation reimbursements of about \$5,000,000. Additional grants and revenue sources amount to approximately \$500,000. These monies are derived primarily from Medicare, a grant from the Robert Wood Johnson Foundation and the Department of Commerce. Total money allocated for HCEC work (based on percentage of time spent on HCEC activities) is approximately \$24,000.

ORGANIZATIONAL STRUCTURE

The office of director of health services comes directly under the project director who supervises the assistant director of health services for professional affairs and the supportive services offered at MLK.

Direct services are administered by the health care teams and the specialty units. Supportive services include X-ray, laboratory, pharmacy, medical records and registration. In addition, the director of health services supervises the office of professional affairs.

* Full-time equivalent

The administrator has responsibility for operations analysis, business services (accounting, payroll, purchasing, etc.) and central services (engineering, housekeeping, etc.).

The director of training also reports directly to the department project director.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

MLK was initially contacted by mail November 21, 1975, and agreed to participate in a letter dated December 3, 1975. Confirmation of MLK's participation was obtained in a telephone conversation on December 5, 1975. Initial documentation of the MLK program was received in the form of the three most recent annual reports.

The documentation received and compiled included:

1. The 4th, 5th and 6th Annual Reports, 1970 to 1972
2. "Assuring Quality in Ambulatory Care," an introductory chapter for the Health Care Evaluation Manual to be published soon
3. A statement concerning the history and development of the HCEC
4. Report of the HCEC 1973 to 1974
5. Minutes of the HCEC, November 25, 1974 and March 12, 1975
6. Cost breakdown for HCEC committee work
7. Comprehensive Family Audit Instructions
8. Description of the Problem-Oriented Medical System used at MLK
9. Problem-Oriented Medical Record Checklist
10. Instructions for the clerical audit procedures
11. Review form checklist for auditing (a) prenatal care, (b) gynecologic problems, (c) postpartum visits and (d) family planning visits
12. Information on flow charts for an ongoing hypertension study

These documents were used as collaborative evidence in constructing the description of MLK's program. The major information obtained on MLK's program was collected during a series of interviews with the personnel directly responsible for quality assurance activities, as well as with personnel responsible for total program administration. Interviews were conducted with the following MLK personnel:

1. Director of Health Services
2. Assistant Director of Health Services for Professional Affairs
3. Chief of Pediatrics and Chairman of the HCEC
4. Chief of Internal Medicine and member of the HCEC
5. Senior Family Health Worker

Topics covered during the interviews included:

1. The history of quality assessment at MLK
2. The function and operation of the health team
3. Social and demographic factors which influence MLK's operation
4. The use of the POMR
5. Current status of quality assessment at MLK
6. Case selection for review
7. Feedback to practitioners
8. Cost of operating a quality assessment activity
9. Special studies

HARRIS COUNTY NEIGHBORHOOD HEALTH CLINICS

Houston, Texas

SECTION I

I N T R O D U C T I O N

The Harris County Hospital District operates seven neighborhood health clinics in Houston, Texas. The clinics are supported by the county tax base, as well as various Department of Health, Education and Welfare (DHEW) grants and third party payers. The district, while supplying fiscal support, depends on the Department of Community Medicine (DCM), Baylor College of Medicine, to provide medical resources within the clinics. All physicians working in the clinics are employed through the Department of Community Medicine and report to its chairman. The administration of the clinics is conducted by hospital district personnel, who report to the district administrator.

The first neighborhood health clinic was supported in part by a Comprehensive Health Planning 314(e) demonstration grant from the DHEW and the whole network was initially aided in part by an Office of Economic Opportunity (OEO) planning grant. These grants were given to the hospital district, which in turn joined with the DCM to begin delivering services to medically indigent county residents.

The seven clinics are affiliated with Ben Taub General Hospital and Jefferson Davis Hospital. There is fairly close coordination between physicians, through the DCM, in delivering services to all seven clinics.

The focus of the study is on the DCM Peer Review Committee, which is responsible for implementing quality assurance methods for each of the seven clinics. Various quality assurance activities have been conducted by the DCM since 1970.

The focus of this description is twofold: (a) to describe the history of developmental activities, and (b) to describe the present audit system (since January, 1976). Audit responsibility resides in the Peer Review Committee, which includes five center physicians and one medical records person from Ben Taub General Hospital. The committee was formed in January, 1976, after the 1975 committee completed its audits.

Site investigators visited five of the clinics: (a) Settegast Clinic, (b) Casa de Amigos, (c) Acres Home, (d) Sunnyside and (e) Ripley House Clinic. Physician staff members were interviewed at each clinic regarding present audit procedures.

The Harris County Neighborhood Health Clinics (HCNHC) were included in the study because of the unique implementation of quality assurance activities through a department of a medical school and the long historical record of quality assurance activities.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section will describe two aspects of the HCNHC peer review system: (a) the development and implementation of the method during 1972; (b) the present operational peer review system, implemented in January, 1976.

The development of quality assurance activities within the neighborhood health centers parallels the amount of collaboration with the Department of Community Medicine. In 1972, the chairman wanted to upgrade the quality of medical records by establishing a routine data base for the records, with a new record system which required a specific format for a corresponding number of specified medical data elements.

During 1971 and 1972 the DCM received a grant from the National Center for Health Services Research and Development (NCHSRD - DHEW) to develop a computerized patient management system for a neighborhood health center. Members of the DCM, while developing the health information system, also developed a peer audit program. Initial program emphasis was on a systematic data base for the audit program. The official program, Health-Illness Profile, was designed to consider all elements of a patient-physician encounter. All encounter data are key-punched at the clinics, printed at DCM (Baylor), and sent back to the clinics.

Although the Health-Illness Profile is not presently used in audit activities, Problem Oriented Medical Records (POMR) used in the audits are an outcome of the development of a systematic computerized data collection and reporting system.

In 1972, the DCM formally established a peer review system in one neighborhood clinic, Casa de Amigos. The methodology and purpose of the peer review system was described in "A System for A Neighborhood Health Center Peer Review" by DCM physicians.

This section will describe the initial system components from the less sophisticated 1972 document, as well as the 1974 and 1975 audit programs. The 1972 program, implemented at Casa de Amigos, was designed to conduct medical record audits for completeness and correctness (Phase I), to conduct peer review for disease conditions by employing explicit standards (Phase II) and to use the Health-Illness Profile to measure performance of entire health teams (Phase III). Briefly, the documents noted that the three phases accomplish the following items:

Phase I. From a base population of approximately 2,000 patient clinic records stratified by age and sex, a random sample of 200 patient records was drawn. These records were reviewed against an itemized checklist for completeness and correctness. An arbitrary criterion was established requiring that at least 90 percent of the items on the checklist be completed after four clinic visits. Reaching this level of acceptance qualified the record to be noted as complete.

Phase II. This phase required the audit of medical records for specific informational elements (data base) using explicit criteria. The audit was constructed around the format of the POMR used in the clinics. These elements are well known and include:

1. Problem list
2. Data base
3. Plan for care
4. Follow-up plans and actions

Criteria were then developed for 13 disease entities which comprised 70% of the visits for Casa de Amigos' adult and pediatric population. Standards were developed by revising already documented standards, which were then revised by DMC physicians for use in the Neighborhood Health Center. After departmental meetings, the standards were presented and discussed with physicians in the clinic. In addition, they were analyzed and discussed individually with each specialist for modification. After a three-month test period, the standards were implemented and reviewed.

The second and most important feature of this phase was professional peer review of the abstracted information comparing standards with data taken from medical records. The DCM Peer Review Committee reviewed the results with the goal of addressing total provider performance by considering the following elements:

1. Completeness of data base
2. Completeness of physiological, psychological and social problem list
3. Appropriateness of diagnosis
4. Adequacy of treatment
5. Evidence of health education
6. Redundancy of prescriptions or laboratory tests
7. Continuity of care
8. Proper referrals and consultations

DCM physicians devised a rating system based on these eight items. The rating system assigned a total of 300 points across the eight operations, with items one and two receiving one-third of the points, items three, four and five receiving one-third, and items five, six, seven and eight receiving the final one-third of the possible 300 points. Peer review physicians assign scores to each medical record, based on the criteria comparison. This attempt to assign quantitative scores to performance was done to support peer review judgments made during the audit procedures. The document indicated eight stated questions were divided among the four sections of the POMR in order to assist record keeping and evaluating specific diagnoses and problems. Figure 1 graphically displays the rating scale. For each of the 13 problems selected for review, criteria were developed for each of the eight questions.

It is important to note that this system made a critical distinction between standards and specific criteria. Because of the use of POMR, four basic sections must be documented. In addition to these sections, and depending on the type of patient (e.g., adult, pediatric) and problem or diagnosis, there were more

FIGURE 1 ~

HCHD NO. _____ AGE _____ SEX _____

RATING SCALE FOR A PATIENT'S PROBLEM
OR DIAGNOSIS AND CHART EVALUATION*

CHART EVALUATION	QUESTION NUMBER	ITEM	RATING
BASIC INFORMATION	1	<u>Data Base</u> Minimum Standard	50
	2	Problem List	50
	Subtotal		100
INITIAL PLAN	3	Appropriateness of Diagnosis	40
	4	Adequacy of Treatment	40
	5	Evidence of Health Education	20
	Subtotal		100
FOLLOW-UP	6	No Redundancy	20
	7	Continuity of Care	50
	8	Referrals and/or Consultations	30
	Subtotal		100
T O T A L		8 quantities	300

*From "A System for a Neighborhood Health Center Peer Review"

specific standards for documenting the standard in the POMR for specific encounters. Each POMR standard had a corresponding criterion which indicated necessary data elements for that specific standard. For example, when a review physician assesses a POMR for the Pediatric Standard Data Base (Figure 2), the review items are the POMR standards which must be present in the form of the criteria noted in the corresponding row. The criteria are much more specific and provide assistance to the reviewing physician in making an assessment (rating) for a particular POMR or episode of care.

After assessing a medical record and assigning scores among the eight questions, a range for the scores established by the DCM divided medical care into three categories:

1. Excellent (score 270 to 300)
2. Adequate (score 240 to 269)
3. Inadequate (less than 240)

This scaling procedure allowed review physicians and others to rank medical records into easily identifiable categories.

These procedures were designed not only to evaluate individual charts, but also to provide a means for reviewing care received by a group of patients with the same diagnosis or problem. The documents note that the peer review physicians could review medical records of a sample of diabetic patients in order to determine the number of records meeting both POMR standards and specific criteria in the peer review process.

The criteria for categories (e.g., excellent, adequate, inadequate) changed when a group of charts was assessed. Care was judged to be excellent if 90% or more of the charts were classified as excellent; adequate if 90% or more of the charts were classified as excellent or adequate; and inadequate if less than 90% of the charts were classified as excellent or adequate. This group rating scheme is based on the 300-point scale outlined earlier. If a number of individual records within the group (greater than 90%) ran scores between 270 and 300, then the group would be rated excellent. The same point intervals for adequate and inadequate were used in determining group performance. The document further stated that two separate Peer Review Committees would evaluate the same group of charts and that the results obtained from both committees would be compared and analyzed.

The document outlined an educational program that would be implemented to correspond with the peer review system. Plans were made to institute an educational program at Baylor College of Medicine to educate physicians on specific problem areas identified during the reviews. It was the plan of the program to include seminars, in-service training at Ben Taub General, Jefferson Davis Hospital and other hospitals in the Texas Medical Center, as well as discussions and regular scientific meetings for neighborhood health center physicians. Also included in this blueprint were plans to distribute current literature on pertinent matters to the group. The purpose of the educational system would be to take advantage of audit results that identify problem areas within the care system,

FIGURE 2
SCALE AND CRITERIA FOR EVALUATING
THE PEDIATRIC STANDARD DATA BASE*

	REVIEW ITEM	RATING	CRITERIA TO BE USED
HISTORICAL	Chief Complaint and Present Illness	8	The chief complaint might be included in present illness. Onset of present illness should be stated. Present illness should be organized chronologically.
	Patient's History	10	Pregnancy, birth, neonatal feeding and nutrition under one year of age. Growth chart and development. Immunizations, illnesses, operations, allergies.
	Family History	7	Tuberculosis, allergy (asthma, hay fever), diabetes, anemia (sickle cell included), kidney disease should be stated if present or not in family history.
	Subtotal	25	The full rating will be given if all the historical aspects are included.
PHYSICAL EXAMINATION	Anthropometry, Vital Signs and Appearance	5	Head circumference will be included in anthropometric measures in children under one year. Blood pressure should not be considered (vital signs) in children under five years.
	H.E.E.N.T.**	5	These five aspects of the physical examination should be present.
	Chest: Lungs, Heart	5	Breast examination should be part of chest examination in female teenagers.
	Abdomen, Genitalia, Rectal	5	The abdominal examination will be the main part of these three components, especially after the six-weeks' physical examination. Rectal, if specific indication
	Extremities, Skin and Neurological	5	The neurological examination will be performed if the child has specific indication for it.
	Subtotal	25	The full value will be given if the physical examination was completed in accordance with stated criteria. Abbreviations in common use are acceptable.
	T O T A L	50	This value will represent addition of historical and physical part of the standard data base.

*From "A System for a Neighborhood Health Center Peer Review"

**Hearing, eyes, ears, nose, throat

and ultimately correct those problems with positive educational inputs to providers. It was further stated that a program of this type could be expanded to all neighborhood clinics of the Community Medicine Service of the Harris County Hospital District.

Phase III. The final phase of the peer review program evaluated medical services by using the Health-Illness Profile. Phase III was designed to analyze the correlation between medical record standards and specific criteria elements against medical encounter information contained in this computerized profile. The document notes the major objectives of the Health-Illness Profile are to: (a) present complete, concise, and accurate information on the state of health and illness of all enrollees, (b) provide a basis for a peer review program and (c) facilitate the compilation of statistical reports useful to the overall clinic management. The Health-Illness Profile contains the following elements (Figure 3).

FIGURE 3

HEALTH-ILLNESS PROFILE ELEMENTS

1. Identification

Identification number, name, address, date of birth, race

2. Health Profile

- a. Physical and anthropometric characteristics (height, weight)
- b. Functional capacity of specific systems (respiratory, audio-visual, cardiovascular, etc.)
- c. Dental condition
- d. Fertility history
- e. Immunization status (vaccinations and illnesses that confer permanent immunity)
- f. Mental competency or developmental status
- g. Socioeconomic situation (family, employment and education)

3. Illness Profile

- a. Active problems or medical diagnoses with date of onset
- b. Inactive problems or medical diagnoses with date of termination
- c. Medication history

4. Services Rendered

- a. List of clinic visits
- b. Hospitalization list
- c. List of surgical interventions

5. Community Descriptive Data

Key health indices of the patient's census tract

The purpose of Phase III is to implement components of the Health-Illness Profile, as developed for general medical information uses, and for quality assurance purposes. The document notes that the Health-Illness Profile "will yield immediate and automated information concerning medical care," as well as linking this review with specific patient episodes. The main thrust of the profile is to reduce the amount of time spent in the clerical portion of peer review activities.

The program elements outlined above as Phase I and II were partially implemented in 1974, 1975 and 1976, as well as the initial implementation in 1971-1972. Phase III has not been implemented. The audits implemented between 1974 and 1976 varied in the specific components used, extensiveness of the program, subject of audits, actions taken based on results and DCM personnel involved. The descriptive focus is on the peer review system implemented on January 1, 1976. The present audits were the subject of most on-site data collection.

OPERATIONAL ACTIVITIES

The organizational format for implementing audit procedures includes one central Peer Review Committee (DCM physicians) which has responsibility for implementing and assessing audits for all seven neighborhood health centers. The previous audits required committee members to collect record information (abstracting), compile the data, and assess the information. Although the 1976 audit involved one central committee, it included seven residents who were charged with the responsibility to collect and compile all record information. The committee members, especially the chairman, supervised the residents during the data collection, but did not have to collect the information.

The 1976 audit centered around the review of seven disease conditions (four chronic, three acute). The goal for the 1976 audit was broadened somewhat from previous audits, to include not only measurement of effective use of POMR's, but also to determine whether routine ambulatory problems are being properly managed.

Explicit criteria were used to measure performance and as a guide to the record abstractors. The present chairman of the committee had several meetings with the immediate past chairman to review and revise already developed criteria. It was noted that the former chairman spent much time in preparation for the 1975 audit developing criteria, including sending each HCNHC physician a copy of the criteria and requesting comments for revision. After the two chairmen revised the criteria, they were presented to the new committee for discussion and further revisions.

Once the criteria (i.e., standards for management of the seven disease conditions) were agreed upon, three members of the Peer Review Committee met with the seven residents to explain the purpose of the audit and the data collection-compilation procedures. After lengthy discussion, the residents went to their respective clinics to begin audit responsibilities (as well as provider responsibilities). The purpose of having residents take a major role in data collection and compilation was to reduce variability in implementing the audits. HCNHC personnel indicated this had been a problem with past audits.

The criteria items for each condition had a priority scheme of three categories:

P1	Highest
P2	Intermediate
P3	Lowest

For each criterion, the abstractor examines the medical record and notes "present (+)" or "absent (-)" on each. The scoring for each medical record is computed by determining the percent of items present.

In selecting records for audit, the method requires that 100 records be selected for each condition, that a random sample of 20 be chosen for audit for each condition, and that a date be chosen to establish a time-frame for the audits. For example, if a date of February 20, 1976, were chosen, then only medical records with entries later than that date would be included in the sample. The evidence suggests that the sample procedures were implemented, but with some variability in collecting the 100 records and then choosing the 20 audit cases. This variability dealt with the time-frame that residents use to choose records. Some residents had to increase the time-frame in order to collect the proper number of records; thus some records examined had longer histories. The residents in each clinic are responsible for supervising the sampling. Once the data were collected and compiled, the Peer Review Committee summarized the results for each clinic and a percentage of criteria items present were summarized in table form.

During the final site visit, the audits for all four chronic conditions were complete, and audits of the three acute conditions were being completed. Results of the audits were being discussed by the Peer Review Committee, but no specific action taken based on these results could be identified.

HCNHC personnel indicated that each clinic's Physician in Chief (PIC) was responsible for taking action based on audit results. The Peer Review Committee had the responsibility of reporting audit results to the PIC, but it was his decision to implement educational and corrective actions. This interaction is somewhat complicated, since all physicians work through the DCM; therefore normal supervisory relationships come into play, regardless of whether audit results are the basis of action.

ADDITIONAL COMMENTS

One area of contention voiced by HCNHC personnel interviewed was the amount of judgment required, by the auditor, to decide whether specific criteria items had been completed in the management of the conditions. Documentation indicated that problems in the 1975 audit surfaced regarding the "inflexibility of the standards." Although the standards were explicit, this indicates that measurement is still difficult when relating medical record information to established criteria. Further, when judgment is required by the auditors, and seven auditors are collecting data and making judgments, the reliability of the data is questionable. HCNHC personnel recognize these issues and attempt to reduce their impact by having a fairly close abstracting and monitoring system. As each HCNHC audit developed, DCM physicians have attempted to identify and solve review problems prior to instituting the next audit.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

Harris County Neighborhood Health Clinics deliver services to approximately 100,000 county residents per year, with the number of visits exceeding 140,000 and the number of encounters approaching 250,000. About 70% per year of these encounters are adults and 30% are children. The Acres Homes, Baytown, Ripley and West End centers see about 10,000 patients per year, while the Casa de Amigos, Settegast and Sunnyside centers see approximately 20,000. The average number of patients seen per day for all clinics is 561.

The HCNHC is supported by county tax revenues. Some funding is derived from other third party payers.

Operational responsibilities for the seven health clinics are shared by the associate administrator of the Harris County Hospital District and the chairman of the Baylor Department of Community Medicine. The administrator is responsible for the fiscal and administrative personnel management of the centers, while the chairman is responsible for the management of medical services and physicians. Each clinic is operated by a clinic manager who controls the entire administrative staff and reports directly to deputies of the administrator.

Problem Oriented Medical Records (POMR) are used at each clinic. This record system is the basis of the Health-Illness Profile, which was developed and is presently managed by the DCM. The profile has four basic components: (a) identification, (b) health profile, (c) illness profile and (d) services rendered. Information for these components is gathered from clinical material generated by physicians and initial working data.

The seven clinics of the HCNHC are all located in lower socio-economic areas of Houston, offering good access to patients who use county services. The clinics themselves are housed in diverse facilities. They range from old storefront buildings to converted school buildings and new facilities designed expressly for housing a medical clinic.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

The chairman of the Department of Community Medicine was initially contacted via correspondence (October 8, 1975) to ascertain interest in participating in the study. Study staff initially met with him on December 31, 1975, whereupon agreement for participation was concluded. Study staff also met with the present and former chairmen of the Peer Review Committee to discuss past and future audit activities.

After these discussions, site visits were made to five centers on May 13 and 14, 1976. Prior to and during the site visits, the following documents describing portions of the quality review system were obtained:

1. A System for a Neighborhood Health Center Peer Review - A 1972 document describing a review system developed and implemented at the Casa de Amigos Clinic by the Department of Community Medicine
2. Evaluation of Ambulatory Care in Neighborhood Clinics - A short paper describing the 1975 review procedures at the HCNHC
3. The 1976 Objectives for the Casa de Amigos Clinic
4. HCNHC Health-Illness Profile
5. Casa de Amigos monthly report, 11/75
6. HCNHC Statistical Summary, 11/75
7. The Harris County Hospital District Clinics: A Peer Review, 5/74
8. Drug Profile 1975

During the site visits the following people were interviewed:

1. Physician-in-Charge of Casa de Amigos and chairman of the Peer Review Committee
2. Physician-in-Charge of Sunnyside, member of the Peer Review Committee
3. Physician member of the Peer Review Committee
4. Physician-in-Charge of Settegast Clinic and member of the Peer Review Committee
5. Four physician residents

During the site interviews, the topics included the following:

1. History of the HCNHC
2. The role of the Department of Community Medicine, Baylor College of Medicine
3. Previous review efforts
4. Current review efforts and methods
5. The function of the Peer Review Committee
6. Problems with the current review procedures

HOUGH-NORWOOD FAMILY HEALTH CENTER

Cleveland, Ohio

SECTION I

I N T R O D U C T I O N

Hough-Norwood Family Health Center (HNFHC) is a nonprofit neighborhood health center providing ambulatory services in Adult Medicine, Pediatrics, Dentistry and Mental Health, as well as other primary care services. Hough-Norwood serves a particular geographic area in Cleveland, Ohio, with a population consisting of predominantly indigent individuals and families. The center receives most support funding from the Bureau of Community Health Services (BCHS - DHEW) but has limited reimbursement from Titles XVIII and XIX, and county welfare support.

There are approximately 27,000 active medical records at Hough-Norwood, which has a medical staff of 30 physicians, 14 of whom are full-time.

In terms of organizational structure, the HNFHC is administered by Cleveland Neighborhood Health Services, Inc., (CNHS) which in turn is directed by an elected board of trustees. The executive director of Hough-Norwood reports directly to CNHS, and is responsible for daily activities.

The executive director supervises the associate director for health services (the medical director), who manages daily medical operations of all health services, and the associate director of operations, who manages the planning, personnel, fiscal and business offices, volunteer services and medical records.

The medical director reports directly to the executive director. Clinical department heads, health team administrators and the assistant director of health services report directly to the medical director.

Quality assurance activities were implemented in 1969, two years after Hough-Norwood began operations. The major method of review is medical record audit performed by physicians using established guidelines. The goal of the audit is to identify deficiencies in use of the Problem Oriented Medical Record (POMR) and to identify problem areas in delivery of medical care.

HNFHC was selected to participate in this study because of its long term experience with an implemented quality assurance program and its use of the POMR.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section describes quality assurance activities at Hough-Norwood Family Health Care Center in terms of background, documented program plans, and operational program elements.

BACKGROUND

During the site visit interviews for this study, Hough-Norwood personnel indicated that commitment on the part of key individuals to formal quality assurance activities has insured a consistent level of operation for review activities. Since implementation of POMR, emphasis has been on documentation of provider performance by auditing performance relative to established audit guidelines and standards of care. Because Hough-Norwood serves a medically indigent population and is supported by government financing, quality assurance activities have always been part of operations.

Peer review activities have been in operation since 1969. Although there have been several revisions in the program, the general goal has remained unchanged, which is to be a "mechanism for physicians to assist each other in improving the quality of medical care provided."

The quality review decision-making lies in three basic areas:

1. With physicians - each physician audits three charts monthly
2. With the Audit Committee - responsible for program policy decisions such as determining the direction of the entire peer review program and its implications
3. With the medical director, executive director and department heads - responsible for major policy decision making

FORMALLY PLANNED ACTIVITIES

Hough-Norwood's planned quality assurance activities are designed to (a) audit the use of the problem oriented medical record (POMR), (b) identify problem areas in patient care, (c) audit physician adherence to Center standards. Documents note that two types of audits were planned: peer audit and checklist audit.

For the peer audit system, the documents indicate the program goal is to audit three records per physician each month, according to an explicit audit format used by each reviewing physician.

The five-page audit form requires the following specific information for each review:

- a. Name of auditing physician
- b. Name of treating physician
- c. Patient name and number
- d. Date of audit
- e. Date of complete workup
- f. Audit number

For each section of the POMR, the audit form stipulates several questions the reviewer must answer using the information in the record. The major sections of the audit form include, (a) problem list (five questions), (b) list of plans on face sheet (four questions), (c) progress notes (seven questions) and (d) summary which, in addition to providing a space for general comments, requires the reviewer to stipulate "urgent needs" or "nonurgent needs." The auditing physician must then sign the audit form and forward the review to the chief of services. The audited physician also receives a copy. The audit system is designed to incorporate professional judgment in the audit procedure, and although specific questions are outlined, many of the questions require interpretation of medical record data or commentary on medical processes.

When unresolved urgent problems are noted by the auditor, the record room audit supervisor will call them to the attention of the audited physician. A "tickler file" is established to insure improvements are made. When the audited physician's chief of services receives and reviews the audit results, he forwards them to the medical director.

After an audit has been reviewed by the chief of services the original audit form is filed in the physician's permanent record.

Documents indicate charts are selected for audits from daily appointment lists by the medical room audit supervisor. Records are chosen only for patients with five or more physician encounters; one medical record is chosen for three weeks out of the month. Each year a report summarizing the HNHFC audit activities is written by the Audit Committee and is sent to the executive director who presents audit results to the board of trustees of CNHS, Inc., at their annual meeting.

Specific audit instructions are noted for each reviewing physician. The instructions are twofold:

1. Read entire chart prior to answering any audit questions, to familiarize yourself with the patient's history.
2. Answer specific audit questions, remembering to be careful and concerned in auditing. A careful audit will be more helpful to the audited physician. Further, the instruction urges reviewing physicians to be honest, fair and complete.

Finally, the documents outline basic standards for the POMR which should be considered by the reviewing physician. These standards (developed by Lawrence Weed, M.D., in 1969) are incorporated into the audit format described above.

The checklist audit is strictly a clerical audit of the POMR conducted on a much less frequent basis than the peer audit. The format for conducting this audit requires the following data elements:

- a. Checklist audit number
- b. Date of audit
- c. Auditor's name
- d. Chart number
- e. Patient's name
- f. Enrollment date
- g. Physician's name(s)

The audit sheet is a four-page form, requiring the auditor to check information for each question and indicate "Yes," "No" or "Not Applicable." The auditor can also include comments if necessary. The auditor must address a total of 57 POMR requirements.

There are no documented guidelines for the clerical person to follow with this audit, though the record room supervisor is responsible for efficiency of the audits.

OPERATIONAL ACTIVITIES

This section will describe the operation of the audit procedures outlined in the preceding section. The two sources of information on operations were:

1. On-site interviews
2. Abstraction of Audit Committee minutes

The main quality assurance activity in operation is physician audit of medical records, the purpose of which is to insure that physicians and ancillary services are using the POMR properly, thereby reflecting a good level of care. HNFHC personnel emphasized the importance of the POMR in facilitating the peer audit, which has been implemented generally as outlined in HNFHC documents.

The peer audit looks primarily at physician performance, rather than disease or diagnosis, although diseases have been audited in the past when specific problems were identified.

In the peer audit procedure, the medical director's secretary examines the appointment list and selects names on patient charts for audit. Chart selection is guided by consideration of these elements: (a) physician, (b) patient's recent use of services and (c) whether the record had been recently audited. There is no systematic or random selection. Only charts of patients being seen on a regular basis are reviewed, for two reasons:

1. To examine the medical care provided to active patients
2. To examine recent physician performances

The secretary gives the list to the record room supervisor who has the charts pulled. Once the record room clerks have obtained the charts, they consult a list of those physicians available to conduct audits, and route the records to them with a peer audit form attached.

Once the medical record is delivered to the auditor, medical record room personnel monitor the whereabouts and time for each by compiling a list of active chart audits. Once the physician completes the audit, the record is returned to the record room where it is refiled, unless some urgent problem has been identified. If, on the other hand, an urgent problem has been noted by the auditor, the record room will notify the audited physician, as well as the medical director. Urgent problems are supposed to be dealt with immediately.

Completed audit forms are then sent to the chief of the clinical department of the audited physician. The clinical chief reviews and signs the audits. Audit forms are then sent to the medical director, who reviews and initials them. A copy is sent to the audited physician and the original is filed in the physician's audit file.

If a significant peer audit problem is discovered, the medical director and the department chief are responsible for deciding a course of action. They usually discuss the situation in the context of what type of feedback a chief of service should initiate, since he is direct supervisor of the physicians.

The peer audit process has been implemented as outlined in Hough-Norwood's plans. Although the audit form has been altered several times over the years, the audit procedures have remained substantially the same. Hough-Norwood personnel indicated the audits usually require 20 to 30 minutes to complete, although the time varies by provider.

Audit Committee meeting minutes spanning a seven-month period (July, 1975 to January, 1976) were reviewed to substantiate the operational level of the peer audit. Each meeting was attended by all committee members: (a) dental director, (b) medical records administrator, (c) medical director, (d) chief, adult medicine, (e) chief, pediatrics and (f) executive director. This committee, chaired by the medical director, reports directly to the executive director.

In two meetings in July, 1975, Audit Committee discussions concerned two main areas:

1. Revision of the five-page peer audit form
2. Method for compiling audit results

Although no specific audits were discussed, the meetings dealt with critical administrative components of the audit program.

Operational activities not identified in interviews included a general tally of audit results compiled after results have been forwarded to the medical director's office. Each physician has an individual tally sheet which allows compilation of audit results in columns to identify problem areas for individual physicians.

The September, 1975, Audit Committee meeting minutes noted several points: (a) as of August, 1975, 977 audits had been performed, (b) audits should be restricted to patients with at least five visits, (c) responsibility for audit follow-up was delegated to three committee members.

The January, 1976 meeting noted the following quantities of peer audits:

October -- 45 records selected for audit, 20 completed
November -- 61 records selected for audit, 53 completed
December -- 51 records selected for audit, 14 completed
January -- 29 records selected for audit, 1 completed

This information documents a high level of audit activity, although the activity is variable. Hough-Norwood personnel said this inconsistent performance was due to the changing demands placed on physicians, and that audit activity is reduced when the workload increases.

In general, the minutes reflect a high level of activity for the peer audit process. The minutes also indicate meeting discussions center not only on audit procedure issues, but also on operation of the total health program. The committee never conducts audits, but defines policies and procedures for the audit program. The minutes did not reflect any discussion of action or feedback for specific physicians. These processes are conducted outside committee settings among the medical director, department chief and individual physicians. The minutes did reflect specific discussions aimed at solving problems identified through the audit.

The operational status of the checklist audit was nil. Audit Committee minutes reflect discussions about the value of this audit. One specific operational activity was a revision of the checklist audit form procedure by the medical records room supervisor.

During the interviews, HNFHC personnel indicated this audit is nonfunctional, and when it was operational, it was done less frequently than the peer audit. One major problem in implementing this audit was lack of medical record room personnel and time for conducting clerical audit.

ADDITIONAL COMMENTS

The operational activity of HNFHC audits is generally high, although it seems to vary with the amount of volunteer time providers can devote to audit activities.

Audit procedures are discussed continually in terms of productivity and revision. The program seems amenable to input from physician and administrative staff, as well as outside sources.

Two Hough-Norwood personnel have conducted external audits of other programs for the State of Ohio Department of Health and the Albert Einstein Medical School Audit Group. They are familiar with quality assurance methods and literature. The major impetus behind the audit program is the enthusiasm the medical director and the executive director bring to the program; equally important is their knowledge of their own program and the delivery system, allowing identifiable objectives and accomplishments.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

As a neighborhood health center, Hough-Norwood Family Health Center offers medical, dental, optometric, specialty, mental health, alcohol treatment, drug abuse treatment, x-ray and laboratory services. To provide these services, the medical staff is divided into five teams. Each team area has a reception office, pediatric and adult examination rooms, dental suite and medical and dental offices.

Other support services provided through HNFHC are pharmacy, transportation, night telephone services, special maternal and infant projects for obstetrical care and patient education services and family planning. Most maternity patients are referred to the Metropolitan General Hospital for delivery.

The center also has an indoor nursery and outdoor playground for children whose family members must attend the clinic. Social services are provided and some individual and family counseling services are available.

HNFHC has approximately 27,000 patients with active charts. The population is predominantly black and lives within a five-mile radius of the health center.

AFFILIATIONS

Hough-Norwood is a nonprofit corporation accredited by the State of Ohio as an ambulatory care facility and as a Joint Commission for Alcohol Treatment Program.

It has formal affiliations with Mount Sinai Hospital, University Hospital and Cleveland Metropolitan General Hospital in terms of backup facilities. There are informal relationships with state and local medical associations.

FUNDING

As stated previously, Hough-Norwood receives funding from various federal, state and local agencies as follows:

80% Federal
16% State
4% Local

From September 1, 1975, thru August 31, 1976, the total budget was \$4,906,745. Of that amount \$2,658,532 went to personnel and direct care, 15% to supportive action and 25% to general services.

The project has been supported by grants from the Bureau of Community Health Services. There has also been limited reimbursement from Titles XVIII and XIX and county welfare (General Relief).

ORGANIZATIONAL STRUCTURE

This subject was partially covered in the introduction to this paper. The administrative staff at HNFHC is composed of 55 persons and the medical staff is composed of 30 salaried physicians. Of these 30, approximately half work less than 16 hours per week; 7.7 are full-time equivalent physicians in medicine and 6.3 are in pediatrics.

When a physician joins the health center he or she signs a contract. The contract in essence says that the physician will work in accord with the medical director, including in quality assurance activities.

MEDICAL RECORD

Hough-Norwood utilizes a POMR which is also a unit record, incorporating all entries by all health providers into a single record.

The data base for the medical record is collected at the first appointment visit. This is called base-line screening. During this visit all routine laboratory exams, X-rays, electrocardiograms, and dental, visual and audiological screening tests are performed and entered in the medical record. During the second patient visit, a complete physical examination is done. From this examination the problem list is generated.

The medical record unit number is comprised of six digits per family plus two suffix digits which identify the family's physician.

Through the use of POMR baseline data, paramedical personnel initiate the follow-up of individual patients. Then the physicians proceed with physical examinations. All visits are coded (ICDA-8, International Classification of Diseases, Adapted, or CPT, Current Procedure Terminology) for billing purposes prior to returning the record to the medical record department.

COMPUTER SYSTEM

A computer system is used at HNFHC only for billing purposes. Every patient encounter is recorded on an Encounter Form and the information is entered into the computer at the billing office.

The billing process is as follows:

1. The patient is seen by a physician
2. An encounter form is attached to the medical record
3. The medical record is taken to the coding and billing unit after the physician has seen the patient

4. The medical record is coded ICDA (ADA, American Dental Association, codes are entered by dental personnel)
5. The encounter form is checked and ICDA codes are added, or both
6. Data from the encounter form is entered into a computer system
7. Bills are produced from the information in the computer and then a "hard copy" is graded based on the service and organization to be billed

PHYSICAL LAYOUT

HNFHC has two service area locations. One houses three teams and the other two. Ancillary services are present on both. The two locations are designed to serve 35,000 patients.

SECTION IV

HCMS STUDY INFORMATION

Hough-Norwood Family Health Center has participated in several quality assurance implementation projects, in which different research teams implement certain methods (e.g., baseline audit, staging) to gain operational experience. They agreed to participate in this study by correspondence dated January 8, 1976.

Prior to the site visit HNFHC supplied HCMS staff with the following documentation:

1. General descriptive manual of all aspects of the Hough-Norwood Clinic (1965)
2. Registration forecast for both Hough-Norwood settings
3. Budget outline
4. Example of complete medical record
5. Encounter forms
6. Minutes for Audit Committee (July, 1975 through January, 1976)
7. Set of tabulations indicating compliance with Diagnostic and Therapeutic Center Standards (1969 to 1975)
8. Hough-Norwood organizational chart (1975 to 1976)
9. List of the Board of Trustees and each member in the organization (1975 to 1976)
10. A Review of the Quality of Medical Care at Hough-Norwood Family Health Care Center conducted by the Evaluation Unit, Department of Community Health, Albert Einstein College of Medicine (1970)
11. Billing forms for various services
12. Suggested standards to be used in physician's audit of the POMR by Lawrence B. Weed (April 1969)
13. Physician's audit forms and procedures
14. Rate of appointments kept September 21 to October 3, 1970, and November, 1971

The documentation provided a good description of the Hough-Norwood delivery system. At the site visit staff concentrated on collection of data on the present level and type of quality assessment activities being conducted at the center.

Four persons were interviewed during the site visit, the medical director, the executive director and two medical record room personnel.

During the interviews, several specific subjects were discussed:

1. Evolution of peer audit activities
2. Implementation of POMR and its use in audit procedures
3. Administrative structure of the quality assurance program, including direct participation by physicians and administrative staff support
4. Duties of personnel involved

5. Conceptual framework of audit procedures at Hough-Norwood
6. Specific elements of review-audit process
7. Elements within delivery setting which affect the review-audit process
8. Data flow of completed audits
9. Basis of decision-making in review-audit process
10. Development and use of medical care standards in review-audit process

Most of the interview time was spent with the medical director and the executive director. The medical director has full responsibility for the development and implementation of all periodic audit procedures at HNFHC, as well as all clinical activities and the review of those activities. The executive director oversees all fiscal and service components of the clinic. The executive director has very little direct communication with the medical staff, but interacts with the medical director to determine the status of periodic review activities. He is committed to administrative and budgetary support of quality assurance activities.

VINELAND FAMILY HEALTH CENTER

Vineland, New Jersey

SECTION I

I N T R O D U C T I O N

The Vineland Family Health Center (VFHC) in Vineland, New Jersey, is a free-standing health maintenance organization (HMO) offering primary medical care.

VFHC began operation in April, 1974, after receiving a grant from the Bureau of Community Health Services (DHEW), and was awarded Certificate of Need approval from the New Jersey Department of Health in August, 1974. The Certificate of Authority under New Jersey's HMO enabling legislation was requested and received in 1975. VFHC plans to market a prepaid benefit package over the next 24 to 36 months to enlarge subscriber population and to decrease dependence on federal funding.

VFHC is a nonprofit corporation with a board of directors of 14 members; a project director (administrator), a medical director, four full time equivalent (FTE) physicians and five ancillary personnel. The quality assurance program is entitled "Monitoring Quality through Chart Audit" and is an explicit criteria audit of specific data elements in the Problem Oriented Medical Record (POMR).

The Vineland Center was included in the study since it represented a new and small medical care setting. HCMS staff received the name from the Association of New York Neighborhood Health Centers, where VFHC had been invited to present a description of their quality assessment program.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

BACKGROUND AND FORMALLY PLANNED ACTIVITIES

The impetus for development of quality assessment activities at VFHC emanated from the medical director's belief that a prepaid health plan must initiate such activities to assure external sources (government, competition, employer-employee, etc.) a certain level of quality in medical services. The medical director has overall responsibility for quality assurance activity and reports directly to the project director. Titled "Monitoring Quality through Chart Audit," the VFHC quality assurance program is an explicit criteria audit of specific data elements in the Problem Oriented Medical Record (POMR).

VFHC documents provided to the investigator an outline of audit goals, procedures and outcomes. VFHC's audit method requires contracted physicians to sign a written commitment describing the type of patient care to be provided. Use of the Problem Oriented Medical Record requires physicians to document plans for care after a patient's initial visit. The Principles of Practice require physicians to assign each patient to one of the following three care groups:

1. Episodic Care Patients

Patients who come for episodic care only; physician plans for no care beyond immediate because:

- a. Patient ordinarily sees another physician
- b. Patient recently had a medical work-up elsewhere, has no desire for another one now, and does not want to decide when he would like another one
- c. Patient is a transient
- d. Patient does not choose to return for a more complete work-up
- e. Patient does not wish to make a commitment as to when he will return

2. Standard Care Patients

Physician feels the patient needs only the usual medical history and physical exam along with the usual tests. Further tests or referrals would depend on the findings.

3. Comprehensive Care Patients

In addition to standard care, the patient needs further care in the behavioral or social areas of health. Patient will be interviewed by a social worker and the case will be considered by a health care team at a formulation conference, during which a health care plan will be developed. The plan will then be presented by a physician or other health professional to the family,

a responsible member of the family, or the patient himself, for acceptance or alteration. The patient will be called for reassessment by the team within 12 months.

Detailed guidelines for the three levels include specific data elements which must be in the chart as the basis for audit. Audits can be completed by clerical personnel. If physicians use the POMR properly, audits can be completed from information on the problem sheet. The VFHC program is based on the premise that a POMR reflects a particular level of care; therefore, the chart audit becomes the central quality assurance activity.

The program's basic data collection document is the audit sheet, consisting of 15 questions about POMR content requiring a yes or no answer. After medical records are audited, the audit sheets are forwarded to reviewed physicians concerned with corrections and explanations, then to the medical staff meeting, where audits and other clinic business are reviewed. The reverse side of the Audit Sheet allows for "physician comments and actions," along with "follow-up with individual physician," based on audit results.

Audits may be done on charts selected by a particular diagnosis. Explicit management criteria for these diagnoses are developed prior to review and the audit is conducted by the entire medical staff.

OPERATIONAL ACTIVITIES

The operational status of the VFHC audit program, as of February 23, 1976, involved the implementation of eight chart audits and one diagnostic audit.

During the initial period of clinic operations when audit procedures were implemented, VFHC staff physicians were under full work loads. The medical director said staff has little time (no more than "60 to 90 minutes each week") for medical staff meetings, which include not only discussing general medical issues, but the development of criteria for management and in-service education as well as voluntary audit activities.

The medical director has invested significant amounts of time in developing and revising the principles of practice for VFHC, organizing support among staff physicians, and developing the Audit Sheet. The director indicated there is difficulty in persuading physicians to commit themselves to regularly scheduled audits, and the small staff size deters development of formal procedures.

The focus of VFHC operational audit procedures is the review of a sample of medical records. The Medical Records Review Committee consists of the four VFHC physicians, two nurse practitioners and one

health assistant. The committee meetings are chaired by the medical director. The goal of the committee is to audit a small sample of medical records for completeness in terms of specific data elements required for initial health evaluations.

The meetings are documented on a tally sheet, which collects the following information for each case reviewed:

1. Date of service
2. Patient name and identification number
3. Name of provider
4. Whether deficiencies existed (columns to mark yes or no)
5. Whether correction was recommended (columns to mark yes or no)
6. Follow-up date, if any
7. Members of committee present at the meeting

VFHC provided the study with a series of tally sheets to document operational audits, but did not provide guidelines governing implementation of the audits. Since the audits are of medical records with uniform data elements, tally sheets note the medical record deficiencies found during audit.

Eight medical record audits have been conducted by the committee, from June 12, 1975, through November 14, 1975. These audits were conducted during committee meetings on a sample of recent initial health evaluations pulled by medical record room staff. On five out of eight occasions all seven committee members attended. One to two members were absent from the other three meetings.

There is little evidence that systematic follow-up procedures exist to correct consistent provider errors, based on recurring deficiencies in the medical record; however, follow-up was indicated in eight cases, and did occur during the first two meetings (June 12, 1975, and September 5, 1975).

Forty-two cases were reviewed during the eight committee meetings. There is no evidence that a minimum representative sample must be pulled to conduct audits or that all initial health evaluations are reviewed. Seven providers were reviewed over the six-month period, with one provider reviewed 13 times (highest), and another reviewed twice (lowest).

The medical record room staff conducted a diagnosis-oriented review in December, 1975, for iron deficiency anemia. Explicit criteria were developed during medical staff meetings, with major input coming from one physician who treated most of the cases. The medical record room supervisor then selected 17 cases of anemia for audit, based on the explicit criteria. One provider was reviewed during this audit, which sought to identify deficiencies in the process of care. Out of the 17 cases audited, no deficiencies were reported. This was the only diagnosis audit conducted as of the site visit date.

The medical director noted that the level of quality assurance activity at VFHC will fluctuate over the first two years of operation because of the various problems a new delivery system faces in becoming permanently established within a service area.

ADDITIONAL COMMENTS

During the interview, the medical director mentioned several variables which seem to affect the implementation of formal quality assurance activities:

1. Recruitment of physicians to the practice
2. Focus of VFHC on marketing prepaid package
3. Focus of VFHC on staying financially viable
4. No interaction between provider staff and administrative personnel regarding audit activities
5. Small population base which does not generate enough cases for review
6. Audit methods not defined well enough, because of inexperience
7. Reluctance of physicians to volunteer time to audit activities

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

VFHC is a small primary medical group practice providing outpatient care to an enrolled population. VFHC attempts to stress health maintenance activities by giving each enrollee a complete health evaluation during the initial visit. The following benefits are provided:

1. Routine office visits
2. Physical examination and immunizations
3. Family health nurse visits
4. Consultations and specialty referrals (VFHC health center physician must authorize a referral to a specialist)
5. Well child care
6. Eye examinations, refraction and hearing tests
7. Health education and family planning visits
8. Diagnostic X-ray, laboratory and pathology tests
9. Therapeutic radiology
10. Minor surgery
11. Maternity care including pre- and postnatal visits
12. Anesthesia
13. Hemodialysis treatment
14. Physical therapy
15. Emergency care 24 hours, 7 days a week

During the first operational year, VFHC's distribution of patients by source of payment was as follows:

- 46% Private pay (self-pay, Blue Shield, employee-paid)
- 32% Medicaid
- 4% Medicare
- 13% Prepayment
- 5% Other

VFHC has also consummated a fiscal and marketing affiliation with New Jersey Blue Cross. Blue Cross is in the process of offering the HMO option as an alternative to the present service benefit coverage. Blue Cross enjoys a 50% market penetration in VFHC's service area which will boost VFHC's marketing plan.

The total number of enrollees from small business employer-employee groups is approximately 3,600.

The medical audit employed at VFHC is a Problem Oriented Medical Record (POMR). Guidelines for use of the POMR by VFHC physicians are described in the Principles of Practice. The data elements include:

1. Data base, which includes an initial evaluation of the patient (medical history, physical examination)
2. Documented problems
3. Diagnosis of problems
4. Date and patient information
5. Resolution of problem
6. Hospitalization, referrals, conferences, telephone calls
7. A plan to address particular problems
8. Progress notes (free entry facts)
9. Flow chart to document each stage of patient evaluation

SECTION IV

HCMS STUDY INFORMATION

HCMS staff contacted VFHC by correspondence on November 21, 1975, to ascertain their interest in the study. VFHC indicated willingness to participate in correspondence dated December 5, 1975, and forwarded initial documentation to study staff on December 8, 1975. The site visit was conducted February 23, 1976.

Initial documentation of VFHC quality assessment components includes:

1. Principles of Practice (revised, August 1, 1975)
2. Correspondence outlining specific elements of program (December 1, 1975, 269 pages)
3. Continuation application for FY 1976 (March 1, 1975) which included the following major documents:
 - a. Summary report to Board of Directors
 - b. State of Affairs (statement)
 - c. First Operational Year Statistical Summary (April, 1974 to March, 1975)
 - d. VFHC Marketing Plan (117 pages)
 - e. VFHC delivery system characteristics (15 pages)
 - f. Medical chart documents (8 attachments to report)
 - g. Budget and fiscal diagrams (10 pages)
 - h. Exhibits (97 pages)

The site visit interviews were with the medical director and the supervisor of the chart room. The Data Collection Instrument (DCI) and Administrative Constraints Questionnaire (ACQ) were not used extensively in the interview because of the low operational frequency of formal quality assessment.

During the interview several topics were covered, including:

1. Operational status of VFHC
2. Development and operational status of audit procedures
3. Problems in developing and implementing audit procedures
4. Prospective accomplishments of audit programs
5. Specific audit completed at VFHC for one identified problem-diagnosis
6. Criteria development
7. Historical development of VFHC
8. Activities of medical record room in audits
9. Problems faced by medical director in establishing audit program

Study staff generally concentrated on questions dealing with issues in developing and implementing quality assessment activities in a relatively new medical care setting.

INDIAN HEALTH SERVICES

Tucson, Arizona

SECTION I

I N T R O D U C T I O N

The Indian Health Service (IHS) in Tucson, Arizona, is one of several independent medical delivery systems providing services to an American Indian population. The Tucson IHS employs ten physicians and five medical assistants.

The Tucson IHS operates a branch office of the Office of Research and Development (ORD), which is the parent organization for the Sells Service Unit, the Desert Willows Training Center (trains tribal personnel) and the Health Program System Center. There are a number of distinct offices within ORD, one of which, the Office of Planning and Coordination, is responsible for coordinating various functions and units within ORD. The Experimental Medical Care Review Organization (EMCRO), funded by the National Center for Health Services Research, is part of the Office of Planning and Coordination. The overall objective of ORD is to study and improve the effectiveness and accessibility of IHS's medical services. The main objective of the EMCRO project was to develop, test and implement various methodologic approaches to assessing the quality of medical services.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

Prior to the implementation of the EMCRO project, some ambulatory quality review activities had already been studied and implemented, establishing a methodologic and operational foundation for the EMCRO project. Two IHS physicians were interested in developing solutions for reaching and treating high risk population groups experiencing prevalent medical problems on the reservation. The physicians developed a "staging" approach which identified sequential phases of the severity of a health problem. This required problem identification and interaction techniques which corresponded with the phases. The purpose of identifying stages was to allocate limited medical resources to attacking the problem in less severe stages to prevent the problem from advancing to a more severe and costly stage.

Since medical resources are particularly scarce in these settings, the two physicians felt it necessary to develop a method allowing tribal health employees to assist in identification and resolution of problems. One physician developed a set of protocols for the particular disease conditions, which were then placed in a format of information gathering forms. These forms would allow a worker to ask a series of questions. Based on patient-provided answers, the worker could then place the patient in the applicable stage of disease development. This simultaneously allowed the tribal worker to stage the patient and refer to assessment criteria in order to evaluate the case in the hope of leading to successful management without the intervention of a physician. The combination of identifying high risk population groups and having the ability to allocate resources in focused areas would potentially make the system more effective and cost beneficial.

The ability to determine risk levels for specific problems was important to allow changes in the allocation of medical resources. When testing began, physicians found medical resources more scarce than anticipated, necessitating the use of fewer field health workers. This merely accentuated the need for a method and program to distribute resources to higher risk sections of the population.

One physician began a study of old medical records in order to determine what factors could be used to predict high risk groups. Eleven factors were delineated which potentially could identify a high risk gastroenteritis patient. This predictive model was then tested to document its applicability. The physician separated newborn infants into high and low risk groups based on the eleven information factors. This information was collected on the day an infant was born. Once high and low risk infants were identified, they were separated into two groups with both high and low risk infants:

- (a) Non-control groups, which received specifically allocated preventive services
- (b) Control groups, which received no preventive services

The results of the study indicated the high risk group which received preventive care had a drop in serious morbidity (i.e., the gastroenteritis did not advance to more serious stages). Low risk groups which received preventive services experienced essentially no difference in occurrence of gastroenteritis.

The two IHS physicians felt they had developed a fairly accurate predictive model. Another study was conducted dealing with infant diarrhea, which also provided supporting evidence for this type of predictive model. From these studies, three key points regarding implementation of quality assurance methods were learned:

- 1. Standards for information gathering and assessment were necessary and could be successfully developed
- 2. When there are not enough medical resources to deal with everyone and all problems, then developing a risk model is necessary for proper allocation of scarce resources.
- 3. Community-based personnel could be used in information gathering, assessment and implementing preventive care procedures.

The IHS physicians, citing this experience with the risk model and staging methodology, applied for an Experimental Medical Care Review Organization (EMCRO) grant in late 1972. The grant was awarded in July, 1973, for a three year period. The EMCRO program had three general phases:

- a. Develop, test and evaluate ambulatory medical care review methods for Sells Service Unit
- b. Implement programs to correct problems identified through development and testing of methods
- c. Measure impact of program activity implemented to correct medical system deficiencies in addressing ambulatory care problems

EXPERIMENTAL MEDICAL CARE REVIEW ORGANIZATION (EMCRO) PROGRAM

The EMCRO program was essentially designed to develop new ambulatory review methods. The purpose was to collect information on the testing of specific methods in order to export tested and hopefully proven methods for use in other medical care systems with similar organizational characteristics.

The method developed prior to the EMCRO grant was used as the basis for all IHS EMCRO health program developments. The method is designed to recognize and audit specific data for a group of specific health problems (tracers) and to measure the effectiveness of IHS services by examining both process and outcome of care. This is accomplished by answering questions (indicators) relating to the effectiveness of care. Results are compared to predetermined levels of compliance (performance standards) to judge the quality of care. The source of these standards, according to documentation, is local medical staff. The approach is problem oriented, in that all identified problems must be prevalent and of significant risk to the population, as well as being measurable by several quality assessment activities. The initial tracer conditions chosen for this study were gastroenteritis, hypertension, and maternal child health care. This method evolved into a nine-step approach entitled FOCUS (Formulation of an Operating Construct Utilizing Skills for health).

Prior to the implementation of the nine-step FOCUS approach, a three-step preaudit process was performed by the local staff as follows:

1. Identify material which is to be audited. Usually charts are selected on a basis of demographic information or diagnoses. A sample as small as 50 charts is adequate to measure indicators. Larger samples are needed if a statistical breakdown of results is desired. Two instruments are used for data collection, (a) the abstractor's map, which is a branching flow diagram derived from a clinical criteria set which prescribes information to be collected from medical records and allows a nonphysician to make a reliable interpretation of data in the record, and (b) the data collection form.
2. Length of study period is clearly defined. Larger time frames will provide more audit specific information, but if the study period is too extensive, specificity is diminished and the chance for rapid performance feedback is lost.
3. Auditing the charts. Prior to the audit, trainees employed for data collection in the IHS program review at least 10 charts per indicator with a qualified health professional.

Once these activities had been considered and implemented, the IHS EMCRO program formally began implementing the nine-step FOCUS approach. This approach will include the following steps:

1. Identify a high priority health problem or health area.
2. Define the health problems as a series of clinical stages such that "stage 0" represents the well patient risk, and "stage n" represents the "nth" stage of the problem. Intervening stages have distinct clinical characteristics with respect to pathologic and functional changes, treatment and prognosis. The stages are ranked in order of increasing severity.
3. Identify general strategies of intervention, based on what stage should be given the most emphasis. The objective of intervention is to promote return to a less severe stage and to report progressions to a more severe stage.
4. Identify priority groups that would benefit from available resources.
5. Define stage-specific patient criteria knowing those elements of care necessary to solve and prevent health problems. Criteria are designed to specify what should be done to population group based on frequency or duration of illness.
6. Translate criteria into an operational structure that defines specific duties in staff supervision of patient care.
7. Identify health personnel training requirements required for the specific problem and structure.
8. Develop programs to evaluate provider performance, the continuity of the problem solving process and health outcomes.
9. Implement explicit "feedback mechanisms" to correct the weaknesses identified through the evaluation.

The key to the entire method is the use of protocols by nonprofessional health personnel for collection of medical data which is subsequently used in the evaluation of care. Protocols are derived from explicit patient care criteria established for system users. To develop criteria, it is necessary to look at the total problem and define its stages, as indicated above. Critical areas of treatment should be defined and the following questions raised: "What are the necessary conditions for meeting the objectives of each one of these areas?" The criteria should then be translated into indicators. These indicators (questions) are data elements which will show whether or not the specific procedure has been accomplished. Each criterion is associated with the performance standard and an indicator. The total number of indicators included in an audit is arbitrary. Generally, indicators are clustered in areas where correctable deficiencies are most likely to exist.

The IHS EMCRO program has established 2 sets of criteria:

1. Those criteria established externally by consultants and updated by staff in order to study the system of care and track a patient through it.
2. Those criteria (performance standards) set by local staff via a teaching session and allow judgments of individual performance. Weights are used to determine the importance of

certain risk factors because some criteria are more important than others in specific risk categories.

IHS EMCRO documentation noted four steps which facilitate efforts to producing criteria:

1. The data recording instrument can be used to help organize the planning process and to insure the final criteria list is complete.
2. Before any criteria are listed on the form, it may be useful to review applicability. Applicability is a function of the expected quality, scientific validity, and potential constructiveness of the data gathered by proposed criteria.
3. Professional guidance from consultants or local experts may be employed to help develop initial criteria as well as a literature review.
4. Before the evaluation is started, local providers can be encouraged to assess and modify proposed criteria lists.

Audits are performed every six months to establish unbiased patterns of care. In this way, health planners can look at data over specific time spans and make conclusions about the delivery and resources used for particular services.

IHS EMCRO documentation indicated two types of support are required to produce optimal results from the FOCUS approach, (a) an effective information system, and (b) the capability to reallocate medical resources to solve specific problems.

The health information system (HIS) has been collecting health data on patients receiving care at the Sell's Service Unit since 1969. Information for the system is collected from a number of settings and uses abstracted data from encounter forms completed during field visits, outpatient visits, inpatient admissions, and inpatient discharges. This information is used to produce patient health summaries and utilization reports. Ambulatory review systems being data dependent, IHS-EMCRO's approach assumes quality of care can be increased by improving the collection, synthesis, and dissemination of critical health data. This population-based health information system has been modified to conduct continuous monitoring of the quality through the introduction of specific audit programs. Based on this goal, a physician self-assessment was programmed into HIS. The three categories of assessment reports are as follows: 1) population-based indicator results for system managers, 2) provider performance reports for health worker self-assessment, 3) provider performance reports for supervision of providers. Population-based indicator results allow for checks on the impact of the health system on the community. The results indicate patterns of care and demonstrate errors in the system with regard to time frames for one patient or a group of patients receiving care.

Provider performance reports for self-assessment provide individuals with an actual list of their cases, the number of times criteria were met, the number not met, and the number that fell above the standard. The providers are also able to compare their levels with average results of other providers.

Provider performance reports for supervision of providers list aggregate scores for all physicians' delivery of services for a one-year period.

A number of tables are available in each report. The user can retrieve desired reports either by entering specific access numbers or by responding to a series of computer generated options. These options enable the user to rapidly screen large amounts of data and focus on problem points. The user has the option of calling for specific indicator results, aggregates or various combinations of aggregates. The user also has the option of filtering out nonexceptional results based on miniscule data samples.

In summary, the importance of the IHS EMCRO methodology evolves from its use of methods which identify high risk patients and high priority health problems, and allocate limited health resources to identified problem areas.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The objective of IHS-EMCRO is to improve effectiveness, efficiency and acceptability of the health care delivery system of the American Indians by:

1. Developing human resources for the operational and Indian management of Indian Health Care Systems
2. Designing the evaluating alternative delivery systems to respond to Indian needs
3. Demonstrating the application and feasibility of alternative delivery systems throughout the service

FUNDING

Proposed FY 1976 funding for ORD and EMCRO amounted to \$291,602. These figures were taken from Office of Planning and Coordination (IHS-Tucson) statistics. Allocation was as follows:

Automated Planning/Evaluation	\$83,147
Hypertension	11,429
Maternal & Child Health	80,915
Alcoholism and Drug Abuse	25,717
Technical Assistance	23,071
ORD-Duke University (technical assistance)	19,606
All others*	<u>48,117</u>
TOTAL	<u>\$291,602</u>

*Includes administrative staff meeting, orientation, leave, etc.

SERVICES

All types of ambulatory services for acute and chronic diseases are available to the entire patient population.

STAFF

As previously mentioned, there are six practicing physicians and three physicians' assistants who rotate through the various units. There are also two dentists, six public health nurses and 24 Community Health Representatives. There are an equal number of tribal health groups which consist of alcoholism workers, mental health workers, nutrition workers and wise ones (senior citizens). There are also several social workers, podiatrists and sanitarians. There are three-four women who code and/or abstract information from the encounter form and three-four personnel who keypunch this information.

PATIENT POPULATION

The Tucson Indian Health Service is responsible for the American Indian population both on and off the reservation in Southern Arizona (about 17,000) and approximately 13,000 Alaskan Natives. Within one year, approximately 70% of the Indian IHS population will be seen either by a primary physician or Community Health Representative and in five years approximately 95% will be seen by a health care worker.

According to the December, 1975 statistics (for the time period July 1, 1974 - June 30, 1975) from the Office of Planning and Coordination of ORD-IHS, the highest number of outpatient visits (22.7%) was accounted for by visits for well child care, surgical follow-up, physical exams, lab tests, socioeconomic problems, family planning and immunization. The second largest category was Diseases of the Respiratory System (12.5%) followed by Accidents, Poisonings and Violence (7.8%), Infective and Parasitic Diseases (7.7%) and Diseases of the Skin and Subcutaneous Tissue (7.2%).

COMPUTER SYSTEM

The IHS has made it possible for remote teletypewriter terminals, both fixed and portable, to provide immediate retrieval of key health information at any point in the patient encounter. In addition to the previously mentioned reports, IHS provides the following:

1. School Rosters for Strep Throat Screening for the Streptococcal Disease and Rheumatic Fever Program
2. General Purpose Laboratory Retrieval Report used for above program to tabulate the number of strep cultures given for any given time period by results of the Beta and Group A Lab
3. Gastroenteritis Follow-up Report which analyzes each child in the data base to compute a risk factor based on various cultures, and in accordance with the assessment, monitors whether appropriate GE tasks have been performed
4. Sanitarian Weekly Communicable Disease Report which tabulates the incidence of infectious and parasitic disease by community, and identifies "repeaters" over a six-month period
5. Hypertension Evaluation Program
6. Hypertension Drug Provision Rate
7. TB Monitoring Program which provides monthly listings and monitors most recent activities relating to TB
8. Analysis of PPD Skin Tests

9. The Problem Oriented TB Summary
10. Lists of individual newborns in lower weight percentile
11. Prenatal and Newborn Report Lists
12. First Visit to Newborn Report Lists
13. Cause of Injury Report
14. Facility Utilization Reports
15. Drug Sensitivity Report
16. Population Summary
17. Inpatient Hospitalization Statistics
18. Hospital Discharge Analysis
19. Contract Health Care Reports
20. Tabulation of OPD Visits by Clinic Type
21. Communicable Disease Report
22. Incidence of Disease by Age Group

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

IHS-EMCRO agreed to participate in the study via a telephone conversation on November 13, 1975. Initial documentation was received on November 19, 1975, which described the quality assessment activities of IHS. The inclusion of IHS in the study group was determined after suggestions were received from various persons in the quality assessment field who recommended a review of the program.

The documentation received and compiled prior to the site visit on February 9, 1976, is as follows:

1. Selected Statistics for the Sells Service Unit - December, 1975
2. Booklet entitled "Quality Appraisal of Ambulatory Patient Care: An Eclectic Approach" - June, 1975
3. Booklet entitled, "First Quarterly Report - July 1, 1975 - September 30, 1975"
4. Summary Description of the Health Information System (HIS) - November, 1975
5. Draft article entitled "A Computer System for Assessing the Quality of Ambulatory Care - March 15, 1975"
6. ORD - IHS Revised Proposed Budget for the Fiscal Year 1975 - July 15, 1974
7. Sample Encounter Forms which are used as the data base for HIS.

A significant amount of information (140 minutes of taped interviews) was collected and questions were administered to the Project Coordinator for Research and Development, and the Health Services Research Officer.

The people interviewed had been involved with the QAP since its inception and were able to provide an excellent overview of quality review issues and program content. An IHS-EMCRO programmer demonstrated the use of the HIS and Medical Care Evaluation Project (MCEP), as well as fielding study staff questions.

The following topics were covered during the interview:

1. Development and implementation of MCEP
2. Funding for MCEP activities, including specific quality assessment activity funding and computer (HIS) funding
3. Staff resources involved in MCEP

4. Unique characteristics of Indian Health Services, including population characteristics and HIS
5. Problems encountered in implementing the use of HIS with regard to quality assessment activities
6. Components of the review process, including identification of problems, criteria development, computer and manual review, and audit.
7. Use of encounter form in MCEP and reliability of computing forms into HIS
8. MCEP's present level of operation
9. The cost of developing and implementing MCEP
10. Medical service risk models
11. Type and amount of "spinoff" studies at IHS
12. Attitudes toward process and outcome issues
13. Future activities in quality assessment involving HIS and MCEP

In addition, MCEP computer demonstrations were provided by a member of IHS staff.

NORTH COMMUNITIES HEALTH PLAN, INC.

Evanston, Illinois

SECTION I

I N T R O D U C T I O N

North Communities Health Plan, Inc., (NCHP) is a free-standing prepaid medical care system, delivering services to an enrolled population of 7,000 in a service area which includes the far-north side of Chicago and thirteen north suburbs. NCHP is a qualified health maintenance organization (HMO) which contracts with a physician service corporation to provide professional services to beneficiaries.

NCHP has been in operation since May 1, 1975, and was federally qualified as a Health Maintenance Organization on May 18, 1975. NCHP operates one facility staffed by sixteen physicians who are salaried members of North Communities Health Plan Physicians Service Corporation. There are six internists, (three full-time), two pediatricians (one full-time), two family practitioners, three obstetrician-gynecologists, and three part-time psychiatrists. Secondary-care physician services (surgery, orthopedic surgery, urology, etc.) are provided on the basis of fixed-schedule fee-for-service contracts; beneficiaries see secondary-care physicians only upon the referral of one of their salaried, primary-care physicians or upon referral of one of the nurse-practitioners. There are three full-time and one half-time nurse-practitioners. The health associates director is also a graduate nurse-practitioner.

Other health professionals consist of a full-time psychiatric social worker who acts as the coordinator of the mental health group, a part-time psychiatric social worker, and two part-time podiatrists.

The general organizational structure includes a 21-member board of trustees elected by the membership, an executive director, a medical director, and a health associates director. The executive director is responsible for marketing and business affairs; the medical director is responsible for medical, technical and scientific affairs; the health associates director is responsible for administration and clinical affairs of the health center and the nurse-practitioners program.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

BACKGROUND AND FORMALLY PLANNED ACTIVITIES

Certain aspects of the NCHP quality assurance program have been in effect since NCHP opened, but the full program has been operational only since January, 1976, and it is not specifically budgeted. Both explicit and implicit standards of care are administered by the Quality Control Committee (QCC). The problem-oriented medical record (POMR) is the primary data source for process and outcome audits using explicit criteria, utilization review, and membership satisfaction review. An automated information retrieval system is used for all aspects of management review.

The general outline of the NCHP Quality Assurance Program (QAP) obligates contracted physicians to develop and implement certain standards of medical care for the entire beneficiary population. These explicit and implicit standards are administered by the QCC which is co-chaired by the medical director and the health associates director. The medical record is the data source for review of physician and nurse practitioner care, while the automated management information system produces data for analysis of hospital and ambulatory utilization.

A quality assurance program was developed at NCHP for three reasons:

1. To meet federal regulations of the HMO Act of 1973, Section 108.110 (J) (1) through (4) and (K) through (R)
2. The interest of the medical director in a formal quality assurance program
3. The requirements of a federally supported delivery system like NCHP to fully document all activities

NCHP emphasizes recruitment screening as an important quality assurance activity. Because of the academic setting of the Evanston medical community, recruited physicians generally have established reputations within the community and are associated with educational activities in medicine.

Documents from NCHP describe various plans by which quality assurance activities have been implemented and the organizational mechanisms developed for conducting these activities. NCHP does not have any funds earmarked specifically for quality assurance activities.

NCHP feels a special responsibility to assure and document high standards of care for the enrolled population through a system of peer review. The foundation of NCHP quality assurance activities is the Medical Service Agreement, which requires contracted physicians to develop and implement certain

standards of medical practice and to establish specific indicators for review of care based on those standards.

The documentation cites several quality control mechanisms:

1. Problem Oriented Medical Record, (POMR) which facilitates quality review because it documents medical processes more precisely than other types of records
2. Use of encounter forms to trace utilization
3. Use of information retrieval systems to document all facets of the NCHP delivery system
4. Professional Quality Control Committee, which will conduct reviews of randomly selected outpatient medical records
5. Membership Satisfaction Subcommittee, which will review members' grievances, relate these problems to the performance of the health plan, and act as the conduit between the NCHP personnel and the enrolled population
6. Examination of various process criteria (e.g., enrollee satisfaction, patient satisfaction, health professional satisfaction, immunization rates, utilization rates) and outcome criteria (e.g., mortality rates, infant mortality rates, duration of disability)

The specifics of the review procedure are:

1. Inpatient and outpatient chart reviews; choosing a certain percentage of randomly selected charts
2. Specific case review and discussion of complex or problem cases
3. Patient interviews
4. Death conferences, structured along the lines of a "clinical-pathological conference"

As an integral part of the quality assurance program, the documentation notes that "systematic data collection" will be implemented. The sources for "systematic data collection" are the encounter form, the POMR and the management system. Data collection is the responsibility of the director of health information, who manages medical record services.

The medical director is given a central role in the NCHP quality assurance program. As cochairman of the QCC, he is responsible for overseeing review functions and taking action on recommendations from the QCC to insure that "changes needed...to guarantee quality of care will be instituted."

Quality assurance is approached indirectly in several ways. All salaried physicians who are members of the Service Corporation are required to devote one week per year to attending a medical education meeting or course. Health care provider (physicians, nurse-practioners, podiatrists, psychiatric social workers) meetings allow professional staff to review the entire NCHP operation. Health center staff meetings, chaired by the

health associates director, review all operational activities of the health center. The development of a Drug Use Profile is noted as a quality assurance mechanism to evaluate drug usage of the beneficiary population.

NCHP documentation generally covers all facets of the prospective and existing quality review programs. Documentation did not address the procedural aspects of standards development, specific feedback guidelines or methods to measure the impact of the quality assurance program.

OPERATIONAL ACTIVITY

The operational status of NCHP's ambulatory quality assurance program was determined during a site visit conducted April 29, 1976, and via staff review of the Quality Control Committee's (QCC) minutes. Operational activities fall into five broad categories:

1. Establishment of quality assurance structure and assignment of responsibilities
2. Conducting audits and reviewing the audits
3. Initiation of review guidelines
4. Quality assessment activities through the Professional Quality Control Committee
5. External review of NCHP conducted by independent research firm

The NCHP personnel made two general points regarding physicians hired at NCHP, the environment of the medical community, and the importance of each of those areas in the development and implementation of formal quality assurance activities:

1. Attitudes of the medical director and health associates director toward the types of providers recruited. Personal acquaintance with, and careful selection of recruited providers (or nurse practitioners), "known" to be very good physicians allows less emphasis on formal quality assurance procedures during the first year of operation. Furthermore, Evanston Hospital, where most recruited physicians practice, has a solid reputation for high-quality medicine. Recruiters have extensive knowledge of practitioners in the community.
2. Establishing NCHP took over four years. The medical director argued for, and finally won, support from many physicians predominantly practicing in a fee-for-service mode. The strategy was to recruit community physicians with good reputations to lend credibility to the program from the beginning. Opposition to a prepaid practice also required NCHP to document the type of care delivered. The recruitment aspects of quality assurance have been of a higher priority than initiation of formal quality assurance methods.

In terms of structure, NCHP has established the QCC, which includes the following members: medical director, health associates director, one primary-care physician, the chairman of the Department of Medicine of Evanston Hospital, and health information director.

QCC conducted meetings in March and April, 1976, attended by all committee members, and cochaired by the medical director and the health associates director. During these initial meetings a sample audit of nine medical records was conducted and discussed. Prior to the first meeting a review audit sheet was developed as a guideline. This reporting form asks twelve questions dealing with these data elements:

1. Medical record legibility
2. Diagnosis and treatment rationality, relevancy, and adequacy
3. Appropriateness of laboratory tests
4. Appropriate physician utilization
5. Appropriate follow-up
6. Action taken regarding abnormal laboratory and X-ray results
7. Date of review
8. Medical record number
9. Auditor
10. A list of diagnoses or problems
11. A list of medications
12. Disposition of the case

The reviewer must indicate "yes" or "no" answers along with an explanation. The QCC conducted the initial audit by evaluating these data elements in the selected medical records. Since then, general guidelines for use of the audit sheet have been developed by the health information director for the entire provider staff.

Completed audits are administered by the health information director as follows:

1. Audit topic is approved by the QCC
2. Medical records are randomly selected based on some indicator (e.g., the March audit indicator was complete health assessments)
3. Medical records are distributed to all primary care physicians and nurse-practitioners for actual review
4. Results are tabulated by the health information director; they are discussed at the QCC meetings and actions are recommended; results are distributed to all providers

Information concerning review activities of individual providers is also maintained by the health information director and reviewed by the medical director and the QCC.

The medical director indicated no action was taken based on the results of the first audit; however, results of the audit were distributed to the primary-care physician staff and the nurse-practitioners.

The implementation of the entire quality assurance program as outlined in documentation is still under discussion within the QCC and Health Care Provider meetings.

Some informal quality assurance activities were being conducted within the context of the Health Care Provider meetings, which began May, 1975. These meetings are held monthly and all clinical providers are required to attend. Review of the minutes for all Health Care Provider meetings revealed the following:

1. The meetings are well attended and last approximately 2 hours
2. Hospital utilization, hospital length of stay and physician referrals comprise the major business of the meetings
3. There is little discussion of ambulatory-primary quality of care issues
4. Health center administrative issues (e.g., appointment-making procedures, medical records, laboratory services) are discussed often

The final area of quality assurance activity cited as operational deals with an external review completed by INTERSTUDY, Minneapolis, Minnesota. Although this activity is not part of the QCC's program, the medical director indicated the study gave NCHP a good rating and made several suggestions about the delivery of services at NCHP. The three-day INTERSTUDY evaluation reviewed 150 medical records based on a systematic audit criterion and procedure. The results were summarized and sent to NCHP and discussed at a Health Care Provider meeting.

ADDITIONAL COMMENTS

NCHP personnel indicated several unique characteristics of the Plan have affected and will continue to affect the development and implementation of quality assurance activities:

1. The long historical development of NCHP, evolving from a heavy consumer orientation to a concern for the business survival of the program
2. A close association with a major medical teaching facility
3. A costly open-enrollment experience which threatened the fiscal soundness of NCHP

4. Being a federally qualified HMO

The major problem in systematic implementation of NCHP's quality assurance program is the emphasis of administrative and clinical staff on assuring NCHP's survival as a health plan rather than on quality assessment activities during this early stage of NCHP's development. This is made evident by examining the type of quality assurance issues addressed by NCHP during the early operational period. The aspects of the quality assurance program addressed since opening day were secondary care referral cases and review of utilization data (both outpatient and inpatient). Approximately six months from initial delivery of services, NCHP began to address more substantive quality issues through review of medical records.

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

North Communities Health Plan, Inc. evolved from a consumer-initiated program (Evanston Medical Consumers, Inc.) to official incorporation in 1970-71. The Physicians' Service Corporation was formed in 1974 to facilitate recruitment of physicians, to provide physicians with a formal corporate structure to work from and to take advantage of certain IRS rulings for setting up retirement programs.

Evanston Medical Consumers, Inc. (EMC) received initial funding from the Illinois Regional Medical Program to begin developmental activities. The Robert Wood Johnson Foundation followed with an \$88,000 grant for educational and developmental activities, and another \$100,000 if EMC-NCHP could match that sum, which they did shortly before NCHP became operational. The Chicago Community Trust Foundation awarded NCHP \$45,000 to develop a nurse-practitioner program for the health plan. NCHP received federal HMO qualification in May 1975, with developmental funding of \$247,000.

Operational funding is derived from two sources:

1. Prepaid enrollee dollars from individuals and employer-employee groups
2. Financial support (credit line) to cover initial operating deficits, from Illinois Hospital and Health Services, Inc. (Rockford Blue Cross)

The organizational structure consists of several units: the Board of Trustees, the executive director, the medical director, and the health associates director. The Board of Trustees must consist of 50% consumer membership and includes several subcommittees: Professional Affairs, Finance and Budget, Membership Satisfaction, Personnel, Program and Benefits and Executive. The executive director administers the marketing and business operations with a staff of six in marketing and enrollment and four in the business office. The medical director is responsible for the medical, scientific and technical aspects of NCHP, and supervises the following distribution of primary-care physicians, who are salaried members of the Physicians' Service Corporation:

1. Internal Medicine
2 full-time physicians
5 part-time physicians
2. Pediatrics
1 full-time
1 part-time (37%)

3. Family Practice
2 part-time (50% and 40% respectively)
4. Obstetrics and Gynecology
3 part-time (20% time each)
5. Psychiatric
3 part-time (20%, 15%, 11% time respectively)

The medical director also supervises secondary-care physicians to whom NCHP patients are referred for consultations and specialty care. Fifty secondary-care physicians have signed agreements with the Physicians' Service Corporation. The director of laboratory service also reports directly to the medical director regarding medical-technical problems. Two full-time technicians and one half-time technician comprise the laboratory force.

The health associates director is responsible for administration of the health center and all employees. The three full-time and one half-time nurse-practitioners report directly to her, along with two clinical assistants and the health information director. The health information director supervises medical records, switchboard, and transcription and reception, a total of 8.7 full-time and four part-time employees.

The health associates director is also responsible for the administrative supervision of the mental health unit, staffed by a full time psychiatric social worker as coordinator, a part-time psychiatric social worker, and three part-time psychiatrists.

The medical director is responsible for all the medical matters and policies in the health center.

The executive director, medical director, and health associates director report directly to the board of trustees.

Nurse-practitioners participate in delivery of basic ambulatory services, and often perform initial health evaluation of new members in conjunction with a physician. Rockford Blue Cross underwrites out-of-area emergency care services, reinsures NCHP for losses over \$5,000 per beneficiary in one year, and does claims administration. Prescription drugs are available to NCHP members at competitive, free-standing pharmacies. The NCHP benefit package is comprehensive and covers all outpatient medical and health services, including laboratory tests, X-rays, injections, immunizations and mental health services. All hospital services are covered. All services are unlimited, except for mental health outpatient and inpatient services.

The medical record employed by NCHP is a Problem Oriented Medical Record (POMR) which includes a problem list, medication list, immunization and screening record and laboratory reports on the left side of the chart. On the right side of the chart there are other sheets for the adult medical history and systemic review, or for the pediatric history with immunization history and physical exam. The remaining elements on the right side of the chart are divided into four sections: special sheets, X-ray, EKG, consultation and progress notes continuation sheets. Encounter forms are filled out for every

patient encounter and are the data source for the automated information system. The encounter form includes the following data elements: provider identification, patient identification, date of service, purpose of visit (10 coded subelements), services (20 coded subelements), X-rays ordered (14 coded subelements), future orders (for laboratory workups) and immunizations. The reverse side of the encounter form lists 86 possible laboratory procedures and their codes. Automated information retrieval services are available from Rockford Blue Cross which supplies claims administration and utilization reports.

SECTION IV

HCMS STUDY INFORMATION

NCHP agreed to participate in the study via correspondence dated November 19, 1975. The following documentation was received and compiled before and after the site visit:

1. Copy of medical record
2. Narrative Statement Outlining Historical development of NCHP (July, 1975)
3. Quality Assurance Committee minutes (March 31, 1976; April 21, 1976)
4. Health Care Providers Meeting agenda and minutes (November 7, 1975; December 11, 1975; January 22, 1976; February 13, 1976; March 11, 1976)
5. Policy Statement: Confidentiality of NCHP members medical records
6. Results of February audits (March 31, 1976)
7. Hospital Census Data (January-March, 1976)
8. Physician Compensation Schedule (February 8, 1975)
9. Copy of encounter form (November, 1975)
10. Audit-Reporting form (November, 1975)
11. Employment Agreement for NCHP Physicians (full-time)
12. Employment Agreement for NCHP Physicians (part-time)
13. Medical Service Agreement, between NCHP, Inc., and NCHP Physicians Service Corporation (April 23, 1975)
14. NCHP, Inc., By-Laws (June, 1975)
15. Results Patient Questionnaire (March 3, 1976)
16. Laboratory and Radiology Utilization by Provider (February, 1976)
17. Subscriber Benefits (May, 1975)
18. NCHP, Inc. (HMO Qualification Document, 1975)
19. NCHP, Inc. Quality Assurance Program document

This documentation outlined every aspect of development and implementation of the delivery system. Information from this documentation is compiled along with information collected during site visit interviews.

HCMS staff site investigators visited NCHP on April 29, 1976. The following personnel were interviewed:

Medical Director
Health Associates Director
Health Information Director
Executive Director

Total interview time amounted to approximately six and one-half hours. The interviews were not tape recorded, but the two site investigators took notes during each interview. Interviews covered several topics including:

1. Historical development of NCHP, covering period from 1971 through 1976
2. Initiation of prepaid practice in Evanston, where fee-for-service is predominant mode
3. Recruitment of physicians and their role in establishing NCHP
4. Development of strong nurse-practitioner role in NCHP
5. Development and initiation of quality assurance program elements
6. The role of provider meetings in developing commitment to a formal quality assessment program
7. Initiation of specific quality assurance activities in NCHP administrative structure
8. Management information system
9. First-year problems of NCHP in delivery of services and remaining financially viable
10. Marketing strategy at NCHP
11. Future activities in quality assurance

SOUND HEALTH ASSOCIATION

Tacoma, Washington

SECTION I

I N T R O D U C T I O N

The Sound Health Association (SHA) in Tacoma, Washington, is one of three qualified health maintenance organizations (HMO) in this study. SHA is a free-standing prepaid practice delivering medical services to a patient population of 3,100 employing four FTE physicians, seven auxiliary medical personnel and 22 support staff. A full range of medical services, including physician office visits, hospital coverage, extended care coverage and out-of-area coverage is provided.

The organizational structure consists of the Board of Directors, Executive Director, Medical Director, and Committees of the Board of Directors and Health Center Staff.

The quality assurance program activities at SHA are largely informal, although formal program elements have been outlined generally. SHA personnel indicated their ability to document and administer a formal quality assurance program is limited since the organization is a new one which must emphasize financial solvency. SHA was included in this study because of their status as a federally qualified health maintenance organization, which requires a formal quality assurance effort.

SECTION II

Q U A L I T Y R E V I E W P R O G R A M

SHA documents describe the quality assurance program as one that examines the relationship between diagnostic (process) procedures, treatment regimens and the medical results of that treatment. SHA assumes responsibility of care for a specific population "and therefore is concerned about the whole chain of events that leads one of its members from a problem . . . through an appropriate outcome." Documents provided outlined a quality assurance program on a general level, describing some specific program elements and objectives. As a federally qualified HMO, SHA is required to comply with regulations (Section 110.108 (j) (1) through (4) and (k) through (r)) outlining an HMO's program emphasis for an ongoing quality assurance program.

Areas of quality assessment responsibilities are outlined for SHA professional and administrative employees, as well as outside professional and governmental entities. Each group of health care providers (e.g. Board of Directors, physicians, nurses, etc.) must adopt regular and active review procedures designed to address three areas:

1. Evaluation of staff by self and by people served
2. Evaluation of providers by peers
3. Evaluation of any supervising staff member in all groups

The "evaluation procedures developed by each group must be relevant to its responsibilities and acceptable to the Executive Director." The Executive Director and Medical Director are responsible for integration of review procedures into daily operations. Quality evaluation records must be reviewed regularly within each provider group or at intervals specified by the Executive Director, who must prepare "an overall quality evaluation report for the Board of Directors."

The final area of review activities deals with an "annually appointed group of outside reviewers." Specific expertise required by the review team, areas of investigations, and data concepts are outlined in documentation.

SHA documents outlined specific delivery system components which must be covered in the quality assurance program. These are divided into three categories: (a) structure, (b) process, and (c) outcome.

The structure component would examine the following elements:

1. Licensing requirements for personnel, organization, facilities
2. Equipment, facilities, etc.
3. Organizational structure
4. Curriculum requirements for obtaining professional position
5. Continuing education

The evaluation of components within the context of a formal quality assurance program would be implemented by the Executive Director's office.

The process component can be conducted from two approaches:

1. According to actual steps taken in diagnosis and treatment of medical problems
2. According to a set of "proper actions" or standards allowing judgment of appropriate/inappropriate action

The documents note this component would be implemented through some type of utilization review and/or medical audit.

The outcome component would examine the "actual outcomes of medical encounter(s) rather than the processes" for the SHA population. SHA plans to measure outcome through examination of the following data: (a) infant mortality rate, (b) surgical complications, and (c) incidence of certain diseases.

OPERATIONAL ACTIVITIES

Besides one enrollee survey, study staff could document only limited operational activities that were associated with SHA's planned quality assurance program elements. During the interview, however, SHA personnel indicated several quality assurance-type activities had been implemented. Although these activities do not reflect a systematic formal program, SHA indicated they were part of a quality assurance mechanism.

1. Patient satisfaction questionnaire
2. Examination of SHA referral structure
3. Informal medical record review
4. Continuing education for SHA physicians
5. Review of complaints/criticisms from enrollees

In addition to these activities, SHA personnel indicated development of program plans (see preceding section) should be considered operational.

SHA implemented one patient questionnaire (No. 1 above) in August-September, 1975. A random sample of 100 SHA enrollees received the 18-item questionnaire; 36 enrollees responded. SHA personnel indicated the survey was a valuable tool for identifying areas of enrollee dissatisfaction.

Review of enrollee complaints (see No. 5 above) is closely related to the survey. The Executive Director's office is responsible for addressing complaints. SHA personnel indicated one good barometer for judging quality of care is a record of enrollee complaints.

The next three activity areas were items noted as quality assurance activities during interviews with SHA personnel. The examination of referral structure (No. 2 above) is a utilization/management review conducted by the Executive and Medical Directors. SHA personnel indicated this activity was a normal

administrative activity, and not considered a formal quality assurance element. The review of medical records (see No. 3 above) was conducted by the Medical Director. The Director did not develop an explicit criteria or decision guidelines because he wanted input from more physicians before adopting guidelines. He did review a number of records for medical outcomes. The Director indicated this review was conducted to assess new physicians' performance. The charts reviewed were not selected in a systematic fashion. The area of continuing medical education (see No. 4 above) was considered a specific quality assurance item conducted to insure that SHA physicians had the opportunity to continue learning while practicing. Specific guidelines (e.g., number of hours given for education, what type of educational activity was required, etc.) from different specialty boards are used to govern these activities.

In general, there have been some activities oriented toward quality assurance, although not in a formal manner. SHA personnel indicated they consider quality assurance "important", but that it must be implemented in perspective with many other organizational objectives.

ADDITIONAL COMMENTS

Throughout the interview, several interesting aspects of SHA delivery setting were noted, and described in relation to altering potential quality assurance activities.

The major factors affecting quality assurance were:

1. Relatively small number of encounters for review
2. Emphasis on financial and organizational stability of SHA delivery system
3. Staff time committed to essential administrative duties
4. Relatively small clinical staff making formal review functions less applicable and desirable

SECTION III

DELIVERY SYSTEM

Sound Health Association (SHA) divides its services into two major categories; health maintenance and medical treatment activities.

As a qualified HMO, SHA offers a broad range of benefits to the enrolled population. Health maintenance activities include health education, counseling, behavioral psychological programs, self-care, patient education, health hazard appraisal, preventive dental services and diet-nutrition instruction. The medical treatment program deals with physician priority services, emergency services, inpatient services (contracted providers), extended care services and home health services. SHA organizational structure includes the following administrative personnel:

1. A 21-member Board of Directors, elected by the membership population
2. Executive Director
3. Administrative Assistant to the Executive Director
4. Medical Director
5. Director of Finances
6. Director of Enrollment
7. Health Center Administrator

There are five standing committees and one ad hoc committee emanating from the Board of Directors:

1. Finance and Management Committee
2. Health Benefits Committee
3. Cross Currents Committee
4. Members Relation Committee
5. Joint Conference Committee
6. Building Committee (ad hoc)

The Board of Directors dictates policy to the Executive Director who is responsible for the total program.

SHA serves a patient population of 3,100 enrollees. At the time of the survey, 65 - 70% of the enrollees received care on a prepaid basis, 10 - 15% fee-for-service and 12% Medicare/Medicaid. In terms of subscriptions, 80% of the members are employee-employer group members and 15% are individual subscribers. There are no third-party insurance carriers involved in the program, except through fee-for-service patients. SHA received a \$1,000,000 developmental grant from DHEW on December 19, 1974.

The medical record employed at SHA is a problem oriented medical record (POMR), with an active list at the front of the chart which notes the problem

code, date of resolution and inactive problem. Progress notes are in chronological order, using the subjective, objective, assessment, plans (SOAP) format. The final section is for inclusion of lab and X-ray information, as well as information for other auxiliary services.

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

SHA agreed to participate in the study in correspondence from the Executive Director (November 6, 1975). On-site investigators conducted interviews on February 11, 1976. Initial documentation was received as follows:

1. Schedule of Services and Membership Dues (December, 1975)
2. By-laws, Sound Health Association (recorded January 18, 1973)
3. Results of Survey of SHA members (August - September 1975)
4. SHA Member Questionnaire
5. Minutes of SHA Fourth Annual Meeting (January 29, 1975)
6. Quality Assurance Systems (revised, February 1975)
7. Minutes, Health Benefit Committee Meeting (September 17, 1974)
8. Qualitative and Quantitative Standards for Various Diagnostic, Therapeutic and Laboratory Services (1975)
9. SHA Health Maintenance Delivery System Flow Diagram
10. SHA Medical Record
11. Statement of Income and Expenses (September 30, 1975 - quarterly)
12. Quality Assurance, Structure, Process and Outcome (August 22, 1973)
13. Quality Assurance Policy (December 12, 1972)

Documentation outlines the goals, objectives, and general program elements of the SHA delivery system and quality assurance program.

A significant amount of information was gathered on the operational status and direction of SHA's quality assessment program during the site visit interviews. Questions were administered to two SHA personnel, the Executive Director and the Medical Director.

Several topic areas were covered during the questioning:

1. Status of SHA's total operation
2. SHA complying with Federal HMO quality assurance regulations (Section 110.108 (J))
3. Responsibilities of medical director, assistant director in quality assurance
4. Problem of implementing quality assessment in a developing program
5. Specific operational quality assurance activities at SHA
6. Use of management information system in quality assurance
7. Data base for quality assurance
8. Patient satisfaction questionnaires
9. Future plans for quality assessment at SHA
10. Philosophical orientation of SHA personnel vis-a-vis quality assurance
11. Relationship between medical staff and administrative staff vis-a-vis quality assurance

BLUE SHIELD OF CALIFORNIA

San Francisco, California

SECTION I

I N T R O D U C T I O N

Blue Shield of California (BSC) in San Francisco is a health care plan which covers individuals for physician services and other medical expenses. BSC also operates as a fiscal intermediary for the provision of Title XVIII and XIX services in California. (Title XIX services are administered in conjunction with Blue Cross). Being a private fiscal intermediary, BSC has developed and implemented various quality review procedures which focus on monitoring utilization of ambulatory physician services.

This paper will briefly describe the organizational units and related functions involved in performing utilization and quality review, in particular the activities of the Provider Review Division (PRD) which reviews submitted claims for payment. This Division was formed in 1967 to begin utilization monitoring of Title XVIII and XIX and CHAMPUS claims. The PRD originally had a staff of three and has since expanded to approximately 100 employees. This study examines the claims-based postpayment review portion of review activities. Other activities for prepayment review will be described only peripherally in context with their relationship to postpayment review.

The PRD consists of four organizational components:

1. Utilization Audit and Review Section
2. Medical Policy Section
3. Medical Review Section (administrative support for medical advisors)
4. Medical Advisors

The Utilization Section is responsible for administration of claims review and uses data reports generated in the Claims Division, although the processing includes review programs developed and entered by the PRD.

They are responsible for implementing the computer programs for review, preparing individual claims and cases for medical review and correlating review decisions to necessary sources.

The Medical Policy Section is responsible for medical decision-making for those cases identified by the Utilization Section. This section consists of medical advisors and is administered by a medical director, who has responsibility for the selection, reviewing and rotation of the advisors based on recommendations from local medical societies throughout California.

The Medical Review Administrative Section provides staff support for the medical advisors, who review the exceptions generated by the computerized

audits in the Utilization Section. Section personnel compile the results of physician review, contact outside sources regarding the review and schedule review sessions for specific advisors.

The Claims Division of BSC processes all medical claims entered for payment. Before claims go to the Provider Review Division they are processed through the claims shops, which are divided into four sections. If professional review is necessary, claims are forwarded to the Medical Advisor Preparation (MAP) units.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

BACKGROUND

During the two site visits relating to this study, BSC was in the process of changing computerized utilization review programs. The Peer Group Norm (PGN) system has been in operation the longest period of time, although it is being replaced with the Retrospective Analysis of Medical Services System (RAMS), which began in January, 1976. As of April, the PGN was still the only program fully operational.

The Surveillance Utilization Review (SUR) system, designed by the Social Rehabilitation Service, functions concurrently with PGN. Supported through federal funding, this system is oriented specifically for review of Title XIX claims and is not yet fully operational; therefore this section describes the PGN system in more detail. Since both systems are essential in the BSC postpayment review process, the description will attempt to picture adequately the interrelationship of the two systems within one larger system.

BSC personnel said the PGN system was initially developed by the EDS Federal Corporation. The BSC role was to explicitly define the end results of a Utilization Review (UR) system, and allow EDS to develop system components. BSC provided EDS with diagnostic topics and appropriate guidelines to be included in the system. Presently, BSC personnel manage all UR data processing.

PGN provides BSC with practice patterns for providers who exceed a statistical computed norm for procedures performed and paid for during one fiscal quarter. Documents define peer groups as the physicians of a comparable specialty within a PSRO geographic locale. BSC personnel indicated approximately 150 individuals occupy each peer group. This program supplies two basic reports: (a) the 080 Report, which provides the computed practice patterns for providers and (b) the 155 Report, which provides BSC utilization analysis and a detailed payment history for providers who generate norm variances.

A weighting system is used in 080 reports to measure to what degree a provider exceeds the norm. Both 080 and 155 reports are generated quarterly, although separate data elements are used for producing the reports. The 080 Report elements include: physician supplier license number and location, patient count, PSRO area, specialty, exception code (those who exceeded norm), type of procedure, dollar amount, service, norm, individual ratio, flag and weight. Information from this report, once reviewed by an analyst, will be used to request a 155 Report for a provider. The 080 Report allows the analyst to review cases based on a weighted sequence since the heavier weights will be reported first, in rank order.

Once a 155 Report is requested for a provider, the analyst will begin the case preparation stage. The 155 Report elements include: provider license number and name, PSRO area, specialty, patient's name and I.D. number, date of service, diagnosis code, type of service, claim number, explanation of benefits (coded), check number, date paid, allowance for payment and billed and total line numbers (claims, services, patients).

BSC documents indicate the above computer programs and audits can measure deviations from levels of care based on criteria established by peer group. BSC uses computers "as another tool or arm of the medical advisors" by taking advantage of established technology in establishing and documenting level of care guidelines and automating the measurement of care. This measurement is integrated with the judgment of BSC professionals to decide (control and monitor) the probity of a particular instance of care.

The PGN 080 and 155 Reports are the essence of the postpayment review system. Several steps occurred in the development of these specific reports. The first step required processing all claims data received by BSC (statewide and with PSRO area) to produce a frequency distribution of all procedures. The second step required BSC professionals to develop acceptable exception points for diagnoses, which were then programmed as computer audits. BSC personnel indicated once a frequency distribution is produced per 100 patients, BSC then processes all providers against these levels. In terms of specific standard development, possible criteria were generated for all procedure numbers and peer groups by BSC staff. These were concurrently reviewed by the BSC medical director and specialty advisors. BSC personnel indicated there were some problems in reaching agreement on exception standards. Once the medical director approved the criteria, they were entered into computer programs. These computerized standards are subject to change by BSC professional personnel and criteria can be revised through an informal review process involving a senior utilization analyst and the medical advisors, who have the authority to request changes in criteria. BSC personnel could not provide information on the frequency of changes in established criteria.

The final step is the actual reporting of procedure exceptions by providers (in rank order). Documents note this report is generated quarterly, using a three-month claims data base. Documents suggest two types of weighting schemes are used, one reflecting exceptions based on noncompliance to total procedures criteria, the other reflecting exceptions within individual treatment norms. The 080 Report is weighted only for the degree to which an individual provider exceeds the total norm, not an independently computed norm for his practice pattern.

The production of the 080 Report is the first step in the four-step process of postpayment utilization review. These four steps include: (a) case identification, (b) case preparation, (c) medical advisor review and (d) case disposition.

The 080 Report identifies cases that should be professionally reviewed by BSC medical advisors. The second step is case preparation conducted by a

utilization analyst. Computerized audits are not the only sources of input in determining what cases should be reviewed. Providers to be reviewed were identified from three basic sources: (a) computer audits (50%), (b) medical advisors criteria (25%), and (c) federal and state government input (25%).

The case preparer essentially compiles original documentation for a specific claim after noting the largest weighted norm variances. This preparer reviews exceptions and weights from the 080 Report, and compares those data with the profile history data from the 155 Report. The analyst then decides whether or not to forward the case for medical advisor review. The case preparer also decides what original documentation to collect in putting together case information. Once all the information has been compiled, the analyst will write a summary to forward to the medical advisor. One analyst indicated she sees "providers doing the same things, over and over," suggesting that patterns of practice, based on computerized audits, can be derived by the analyst. This fact is important given the decision that the analyst makes in the total review process.

The case preparer keeps a log of all cases prepared and sent for review. After 90 days, the analyst will follow up the case to find its disposition. The analyst indicated approximately 750 cases are prepared quarterly.

The third step involves implicit peer review by BSC medical advisors. Physician advisors review all documentation provided to determine the probity of care, and determine whether the weighted exceptions were acceptable based on valid medical opinion.

This component of BSC review process is the most critical. Documents outline several options a medical advisor can implement:

1. The practice is acceptable, no further action is necessary
2. This is a borderline case, review another quarter
3. Request more information from provider either in writing or by phone
4. Call provider in for a conference
5. Place provider on prepayment review for possible presentation to local review committee
6. Recover paid claims for a period of time and then go to the local review committee
7. Possible fraud is discovered and the matter is turned over to the proper authorities.

Options (1) through (4) are conducted solely by the advisor or in conjunction with the case preparer. Option (5) involves kicking out all a provider's claims forwarded from the Claims Division to medical advisors for review. Option (6) involves a more detailed approach. During interviews, BSC personnel indicated one senior program analyst is responsible for preparing and scheduling case presentations to local County Medical Society Peer Review Committees. The analyst substantiated the case for BSC by documenting claims information (basis of exception) with the assistance of the case preparer. This entails the collection of additional source material, including

the medical record, X-rays, and laboratory records. BSC notifies a local committee in writing that it wishes to present a case. At the same time, BSC notifies the physician in question. The medical advisor who made the decision to forward the case to committee (after review by BSC medical director) is not required to attend the meeting, although the BSC field representative does attend. The local committee assigns a case manager who reviews the case and presents his opinion to the committee. The provider in question has the opportunity to present his version of the case, and the committee comes to a decision in a closed-door meeting. Local committee decisions usually consider BSC recommendations in conjunction with the other evidence, and have five choices of corrective action: (a) postpone decision, (b) concur with BSC, (c) adjust physician RVS billing pattern, (d) deny payment for services, (e) indicate overutilization.

For option 7 (see previous page) BSC refers cases to authorities in proper governmental agencies for investigation and possible prosecution.

Because of the importance of the medical advisor's reviews in the BSC utilization review program, BSC personnel were questioned on procedures for choosing medical advisors. Each medical advisor is nominated by a local medical society on request from BSC. Advisors must be in active private practice, and must be willing to perform review. BSC, after reviewing nominations, contacts providers to ascertain interest in conducting reviews. If a physician decides to become a medical advisor, BSC provides orientation to review procedures. This entails an introduction to BSC review philosophy and method, and a "practice" review of claims with the assistance of an experienced review person (usually a registered nurse). The review person observes the nominated physician and forwards comments to the BSC medical director. Advisors do not have a contractual agreement with BSC, but are employed as consultants. It was noted that advisor reviews are evaluated by a variety of BSC personnel, with the final decision resting with the BSC medical director. BSC employs approximately 200 advisors; most work less than 20 hours per week.

Step four in the postpayment system requires disposition of review cases. The medical advisors will accept or not accept the reported exception. Non-accepted cases go to the Medical Review Section for discussion of the case problem, and a decision as to whether to place a provider on prepayment review is made.

The PGN review mode has been used for four years; evidence collected suggests it has been put in operation as planned. BSC personnel indicated the Surveillance Utilization Review System (SUR) will be implemented and operate concurrently with the PGN system.

Surveillance Utilization Review System (SUR)

The SUR was scheduled for implementation beginning January 1, 1976, but was not yet fully functional at the time of the site visits and therefore will not be fully described. The SUR is similar to the PGN program; federal funding is available to those review organizations (Title 19 fiscal agents for states) who implement the SUR.

The SUR is retrospective and oriented toward utilization patterns on a participant (provider-beneficiary) basis. As in the PGN system, norms are computed to represent the range of reasonable participant utilization for specific diagnostic and treatment categories within specialty groups. Individual activity is compared to the norms and exceptions are then identified for further review.

A major aspect of the SUR is the exception processing apparatus. The summary profile reports are implemented through automated exception processing techniques. The exception processing requires six major steps:

1. A statistical profile is developed from information contained in paid claims for each individual provider and recipient
2. The statistical profiles of all providers and recipients are classified into peer groups
3. Averages and standard deviations are computed by peer group for each indicator contained within each statistical profile
4. The averages and standard deviations computed in step three are used to establish norms or exception criteria by peer group for each indicator in a statistical profile
5. The statistical profile of all individual providers or recipients within each class group is evaluated indicator by indicator against the matching exception criteria established for each peer group
6. All providers or recipients from at least one exception noted during step five are printed out for manual review

Three levels of reports are generated:

1. Management Summary Reports, which reflect the performance of a recipient and provider group based on a comparison of utilization with specialty class norms
2. Summary Profile Reports, which detail recipients and providers who have exceeded norms
3. Claims Detail Reports, which reflect detailed claim information and are available on request

In terms of functional reporting, the system is divided into two major categories: recipient reporting and provider reporting. Both categories have major subsystem functions with the results being generated in Management Summary Reports and Profile Reports.

The provider subsystem begins with the processing and storing of history data in three separate files, then continues by computing norms and selecting exceptional claims which are also placed in files; the other files in the system consist of provider summaries and peer group summaries. This summary of provider performance is reviewed with the class group and processed through the exception file. The Provider Summary Profile is produced after formatting. The exception claim file, after formatting, produces the exception claim detail reports. The same basic program is followed for the recipient reports, with the important addition of the eligibility master file being processed.

Although the present BSC utilization review system (PGN) will operate concurrently with SUR, there seem to be several differences between the systems:

BSC Utilization Review (PGN)

1. Specific procedures are processed
2. Reports produced quarterly
3. No trend data
4. Six-month data base
5. Procedures flexible for programming changes
6. Selects out any provider desired by analyst
7. Uses payment date to begin processing

SUR

1. Procedure categories are processed
2. Reports produced monthly
3. Trend data
4. Fifteen-month data base
5. Procedures categories not flexible for change
6. No method to pick out any providers
7. Uses service data to begin processing

Retrospective Analysis of Medical Services (RAMS)

The final area involved with postpayment utilization review deals with BSC's implementation of Retrospective Analysis of Medical Services (RAMS), a model treatment program which evaluates services (based on claims data) for a specific problem or diagnosis in comparison with an ideal or expected patterns of care. BSC personnel indicated RAMS was implemented January 1, 1976, but it was too early to collect any data on its operational status. This system, developed by EDS Federal Corporation, produces (a) periodic histories, profiles and exception reports based on diagnoses, (b) subsystem programming for special studies as requested and (c) detailed provider and patient histories.

Data taken from claims information may be divided into four categories:

1. Geographic locality according to PSRO area, statewide or regional parameters
2. Specialty
3. Diagnosis
4. Type of service or procedure

The main measurement tool of this system is the development of treatment models with defined paradigms for "required," "optional," or "never," which note when certain services are to be provided for a specific diagnosis. The treatment models can be developed in five categories:

1. Analysis of existing diagnosis and treatment interrelations
2. Review of the above reports is incomplete; domain of the analysis is selected by specifying diagnostic procedural categories
3. Empirical treatment models, based on past events, historical data
4. Models can be modified by user to form ideal models
5. Norms are computed for each procedure category within each diagnostic category, and are consistent with the treatment models

This system generates lists of exceptions to the established model treatments. The exceptions are reported for both providers and recipients, and the

system can combine groups and rank them in order based on frequency of exceptions. This reporting capability deals with the summary profile reports. Once a category of service is chosen (which may be different from this in treatment analysis), it can be defined by combining procedure codes and providers into eight major categories, using any combination of procedures. The capability exists for eight major categories, ultimately obtaining ratios, percentages, etc., and reflecting exceptions.

This sytem uses a 15-month data base, and data can be retrieved and reported for any specified period within that 15-month time.

ADDITIONAL COMMENTS

Blue Shield of California, as the Title XIX fiscal agent for the State of California, is responsible for collecting, processing, and reviewing Medicaid claims for the entire state. This responsibility requires BSC to implement automated data systems which support the required professional review functions. The system is presently undergoing change because of the implementation of SUR and RAMS; however, the professional review conducted by the medical advisors remains unchanged, and is the cornerstone of the total review process.

SECTION III

H C M S S T U D Y I N F O R M A T I O N

Blue Shield of California was included in study at the suggestion of the Study Advisory Board in January, 1976, to include a fiscal intermediary which reviewed claims for utilization and quality control. Staff contacted BSC to ascertain interest, and they agreed to participate in a telephone discussion on February 10, 1976. Initial documentation of BSC review activities was received on February 23, 1976. Documents provided included the following:

1. Blue Shield Post-Payment Utilization Review (summary document)
2. Surveillance and Utilization Review (SUR) manual
3. Peer Group Norm Report (Revised October 1, 1974)
4. Utilization Review System, Users Manual (EDS)
5. Retrospective Analysis of Medical Services: A Treatment Model Approach (December, 1975)

Further information regarding the BSC Specific Utilization Review system was collected during two site visits, March 5 and April 2, 1976. Several personnel were interviewed including:

1. Senior Utilization Analyst
2. Utilization Analyst and Case Preparer
3. Senior Program Analyst
4. Assistant Vice President, Provider Review Division

UTAH PROFESSIONAL REVIEW ORGANIZATION
PHYSICIAN AMBULATORY CARE EVALUATION SYSTEM

Salt Lake City, Utah

SECTION I

I N T R O D U C T I O N

The Utah Professional Review Organization (UPRO) is responsible for performing quality review of ambulatory care* provided through the Utah Medicaid Program under contract with the Utah Department of Social Services. The Physician Ambulatory Care Evaluation Module (PACE) was designed by UPRO and Optimum Systems, Inc. (OSI) to detect problems in the type of ambulatory care provided by physicians through the use of automated screening methods. Data used for review are generated by the Medicaid claim forms collected and preprocessed by the Utah Medicaid Program. The review system is predicated on the use of automated data processing to capture necessary medical data from claim forms submitted to the State of Utah for payment. The Medicaid Management Information System and PACE claims-based review system compares this information with criteria or screening parameters established by the UPRO Quality Evaluation Committee. Profiles which contain instances of questionable care are reviewed by physician reviewers. The physician reviewers take action based on comparison of criteria and services. Where patterns of care appear unjustified, the PACE Ambulatory Care Review Committee contacts physicians.

* UPRO is also responsible for review of hospital care

SECTION II

QUALITY ASSURANCE PROGRAM

HISTORY AND FUNDING

In 1972, Public Law 92-603 created the Professional Standards Review Organizations (PSROs), which were designed to assess medical care and reduce the costs of care provided under Titles V, XVIII and XIX. At the same time, federal funds were made available for the development of management information systems to improve state level administration of Title XIX throughout the country.

The Utah Medicaid program initiated in July, 1966, was one of the first state programs established under Title XIX. According to documentation, the program provides services to approximately 77,000 individuals each year at an approximate cost of \$25,000,000. Because of the large demand for services by the population, the existing system had difficulty administering and controlling program costs.

To improve the capability of the Title XIX State agency to administer the Medicaid program, the Utah Department of Social Services established a project which provided for the development and implementation of a Utah Medicaid Management Information System (UTAH MMIS). In seeking new processing capabilities, it hoped to incorporate in the program efficient professional review by UPRO.

The Utah Professional Review Organization (UPRO) was supported initially by the Utah State Medical Association, and subsequently by an EMCRO grant from the DHEW Bureau of Health Services Research and Development. The PACE program was initially developed to demonstrate the feasibility of performing evaluations of medical care by examining data available only on claim forms. Initial concepts were developed by UPRO personnel; subsequently several firms (University of Utah, Dikewood, OSI, Blue Cross) had bid for the contract to implement initial PACE design. The contract was awarded to OSI, who had formulated a data processing component for PACE. On October 1, 1972, an agreement was reached between UPRO and the Utah Department of Social Services to make Medicaid claims available to OSI for entry into PACE under the EMCRO grant. At this time, Utah did not have an automated claims data entry process, so OSI performed the functions of medical encoding, claims data entry and editing. Soon after this agreement, data input and the screening of claims data against developed medical criteria began. A major part of the EMCRO project was the initial development of medical criteria to screen the Title XIX claims.

By early 1974, the original concept had been tested and proved feasible. At this time, the idea of a package which could perform the function of PACE and could be integrated with planned or existing MMIS operations was formulated. The knowledge, experience and cooperation developed among UPRO, the Utah State Department of Social Services and OSI led to a contract with the Social and Rehabilitation Services (SRS) in July, 1974 for the development of the MMIS-PACE

Module. The PACE system had been developed and operationalized by UPRO during the EMCRO contract period in order to review Title XIX care. When integration was proposed, the PACE module was already in operation. It was necessary to design software to link PACE with MMIS and OSI was charged with the responsibility of developing a refined software module compatible with the Surveillance and Utilization Review (SUR) component of Utah MMIS. UPRO's main activity during this time was to identify reporting and screening logic needs for the integrated system. By October, 1975, the new software was installed and PACE was successfully integrated with MMIS.

UPRO personnel indicated the core of their review methodology lies in development and use of automated medical guidelines. These guidelines produce exception reports which are reviewed by UPRO physicians. Individual guidelines (computerized files) are periodically revised by the Ambulatory Care Review Committee. Since the guidelines are computerized, UPRO staff (in conjunction with OSI) can quickly assess and revise them. UPRO personnel indicated guideline development and programming had been a complicated process requiring substantial investment. Guidelines are continually updated.

Since PACE is essentially designed to compare claims data with established criteria and report exceptions, the professional assessment is governed by UPRO's approach to review, which is twofold:

- a. to review exceptions in light of what educational needs a particular physician requires
- b. to review and make professional judgment based on a pattern or trend of exceptions, rather than isolating one case and basing action on that

UPRO views its role as one of liaison with the entire medical community. As a representative of that community in a professional review effort, UPRO fills this role by attempting to identify and involve physicians supportive of review efforts. UPRO emphasizes solid relationships with the physician community because review system success depends on physician participation. Although the entire review system is based on automated data processing, the importance of UPRO's philosophical approach to professional review ultimately decides the comprehensiveness of the system.

DOCUMENTED PROGRAM COMPONENTS

According to June, 1975, documentation, the overall objective to the Utah MMIS-PACE project was to develop a computerized system to support a PSRO in performing ambulatory care review for the Medicaid program. Within this general objective the MMIS-PACE Module was designed to meet the following specific objectives:

1. The system must provide effective tools for reviewing Medicaid ambulatory care claims data by providing

- a. a flexible means of communicating professional criteria to a computer system (includes modification and deletion as needed)
 - b. the ability to perform prepayment review immediately
 - c. the ability to construct patient treatment review so quality of care and utilization patterns can be observed over time
2. Develop the review system by taking advantage of the review experiences of UPRO and others who have been involved in ambulatory care review
3. Support the data requirements of a PSRO by providing
 - a. patient treatment profiles
 - b. other requests for selective information from the data base
4. Take advantage of specific knowledge gained by the UPRO pilot project
5. Develop a relatively simple interface to the Utah MMIS system
6. Provide a software package that is transferable as a review tool for other PSROs

According to documentation, analysis of the quality of care is performed based on objective criteria (on guideline) developed and ratified by the Quality Evaluation Committee. Each specialty is responsible for criteria development in its own specialty area. Physician reviewers may also recommend criteria modification or the creation of new criteria. To develop criteria, a committee member makes a recommendation which is approved or denied by the entire committee. The number of criteria developed depends on the activity of the committee. The current (July, 1976) guidelines set includes 231 different screening guidelines for 114 different categories of diagnoses, procedures, and medications. Drug criteria have been developed for drug data processed from pharmacy claims. These criteria are guidelines against which ambulatory services as recorded on claim forms can be compared in an automated screening process. Some criteria pertain to single encounters and other analyze a patient's history of care.

Criteria are designed to identify combinations of care which are:

1. Required for ideal minimum care
2. Inconsistent with ideal care, or
3. In excess of reasonable utilization patterns

Each automated guideline has a number of keys against which claims data are passed. Certain major keys determine whether new claims data will be reviewed against specific guidelines, once UPRO receives the claims data from the state. There are two levels of guideline screening: (a) the major key which triggers guideline review, and (b) subordinate keys integrated into each guideline item. The first level keys pass claims data against many items, including:

1. Diagnosis or diagnosis list
2. Provider identification and specialty
3. Procedures and frequency of procedures
4. Drug information (code, classification, dosage)

The set of subordinate audit keys include the following items:

1. Object of search (e.g., diagnosis, procedure, drug reference)
2. Threshold condition (e.g., length of time claim should be held for review to be conducted)
3. Limit section, which defines the (maximum or minimum) number of occurrences for objects being searched or reviewed

Because guidelines are the critical component of the review system, they reflect programming interactions that will capture the infinite number of combinations of medical data elements on submitted claim forms. The keys essentially search for the proper guideline areas necessary to screen a claim against specific combinations of diagnostic, procedure, provider and patient information.

All services which conform to established criteria (screening parameters) are not subject to peer review and are cleared for immediate payment. Those services not conforming to established criteria are reported out for evaluation by a physician reviewer. The PACE Module can perform two separate but supportive levels of review.

Prepayment review immediately screens all claims against the physician-developed medical guidelines. It is also possible for a reviewer to flag all claims entering the system for specific patients, providers, diagnosis codes, medication codes, etc. Claims which pass through the prepayment review cycle and conform to computerized criteria are automatically given a "pay" disposition. Those claims failing this level of audit are suspended for physician review. A prepayment evaluation is based on the patient's history up to the time the claim is received.

In addition to being evaluated on a prepayment basis, a claim may be placed in a postpayment evaluation cycle for additional evaluation against time-dependent criteria. Postpayment review is retrospective and examines care and treatment patterns over time. This level of physician review consists of an evaluation of the medical necessity for services viewed over time. This level of review requires service records be placed on a recycling file which releases the record for evaluation only after the specified time for holding the record is passed. The postpayment review allows for closer UPRO monitoring of patients and providers for purposes of medical education. The system allows prepayment screens to be established or adjusted to reflect the findings of retrospective review regarding exceptional patterns of care.

Beginning in August, 1976, UPRO physician review procedures were modified to allow concentration on patterns of exceptional care. Under the new procedures, most exceptions identified by computer screening are given an automatic "pattern data not yet sufficient for review" disposition. Once a pattern of questionable care has been identified (tentatively set of 3 exceptions on a

single guideline for an individual provider), the patients' profiles are generated for physician review. Some guidelines, however, continue to be reviewed on a case by case basis. These include all "report only" and "pend" guidelines, as well as other selected guidelines for which individual case review is deemed necessary.

CLAIMS PROCESSING AND PHYSICIAN REVIEW

The data base information processed by the PACE module is obtained from four types of claim forms:

1. Physician invoices
2. Outpatient hospital, laboratory and X-ray invoices
3. Pharmacy invoices
4. Clinic invoices

According to June, 1975, documentation, the Utah Medicaid program currently processes 100,000 claims per month. All the ambulatory care claims are processed by the MMIS-PACE module.

The system is dependent on the following information:

From physician claim forms:

- a. Date of service including period of hospitalization
- b. Procedure codes and descriptions
- c. A diagnosis linked to each procedure (up to four different diagnoses)
- d. An indication, in the case of injections, of the type of medication administered

From pharmacy claim forms:

- a. Prescribing and dispensing dates
- b. The identification number of the prescribing physician
- c. Drug codes in the case of commonly prescribed drugs
- d. Quantity prescribed

From outpatient hospital and lab invoices:

- a. Dates of services
- b. Outpatient procedures codes
- c. Primary and secondary diagnosis, if available (not linked to specific procedures)

MMIS PROCESSING PRIOR TO PACE INPUT

Medicaid claims are received at the Utah Department of Social Services. The original and one copy of the three-part form are received by the department

while the provider retains the other copy. An initial check is performed for completeness by the claims reviewers in the Medical Claims Section. If necessary, incomplete claims are returned to the providers. Claims are then organized into batches and each claim is assigned a document control number and a batch identification. After document numbers are assigned, the claims carbon copies are separated from the originals and sent to UPRO as hard copy evidence for physician review and periodic accuracy checks. Data entry is performed by the Department of Social Services. A computer audit determines the eligibility of the claim with regard to the provider, patient diagnosis, etc. Those claims termed ineligible are automatically denied payment (reasons for denial will accompany the remittance statement) and are not included in the PACE data base. The information to be sent to UPRO for PACE review is copied onto the PACE Interface (or Review) Tape. The pharmacy, outpatient, clinic, and lab claims then proceed to payment. Physician claims, however, are held in suspense until a clearance for payment is returned on a PACE Review Disposition Tape.

PACE COMPUTER PROCESS

After UPRO receives the tape, it is sent to OSI to be processed into the PACE module. Upon receipt of the tape, a second provider and patient eligibility check is performed. The claims data are then measured against computerized screening parameters. In addition to the diagnosis, procedure and drug types of criteria noted previously, the module also includes two other types of criteria. The first are screening guidelines keyed to certain provider characteristics; the second type, "report only criteria," are tentative guidelines which are in the process of being investigated for inclusion in the permanent guidelines. The number of exceptions identified for each "report only" guideline are tabulated to determine if a sufficient level of activity exists to justify inclusion of the guideline.

As a result of the computerized screening, at least five outcomes occur:

1. Claims conforming to computerized criteria are approved.
2. All claims data are added and updated in the history file to maintain the integrity of the data base. This data base will serve to permit the continuation of the utilization and quality analysis process and will also be the source of supporting data for all claims identified as exceptions in the criteria screening process.
3. The primary tool for review is the Patient Profile (which prior to August, 1976, was generated automatically). Each profile contains the entire patient history on file, with descriptive messages relating each flagged treatment to the cause of the exception, the date flagged and the review date and disposition. Patient profiles are constructed to provide the reviewer with enough information to make a case judgment.

4. All exceptions are maintained for each provider automatically in the Exception Message File. Each time an exception is found for a specific provider, the computer automatically adds the information to the already established exception record for that physician in addition to printing it out on an exceptional Patient Treatment Profile.
5. Potential violations of time-span guidelines are added to the "Hold File" for later review. They are rescreened each time claims are received.

All profiles are delivered to UPRO for professional review. In addition to these profiles, other reports (as well as additional information) can be requested as needed by the physician reviewers or the members of the Ambulatory Care Review Committee.

Special administrative statistical and summary reports may be generated by the Review Request Submodule. (This is one of five submodules which constitute the structure of the MMIS-PACE Module. The other submodules will be discussed in greater detail later in the description.) It is capable of presenting information in several ways - specific patient profiles and samples as well as statistical and summary reports.

There are nine summary reports:

1. Suspense Audit Report (PR-610): Lists all claims currently in the PACE Suspense File (exceptions for which no disposition has been assigned). The report is sorted by patient age group and ID number, and flagged by date. In addition, a Suspense Cross Reference Report (PR-611) can be generated to provide a list of all providers with multiple exceptions currently awaiting physician review.
2. Line Item Summary Report (PR-624): Provides a summary of the usage of services in association with diagnoses and a summary of the occurrences and the quantities dispensed of drugs. The lists are sorted by procedure code and drug code, respectively.
3. Exception Message File Report (PR-630): Provides a listing of each exception message on file, for specified periods. Each report can be coded to include or exclude any evaluation disposition code and up to 10 provider specialty codes. The report can be sorted by any or all of the following fields (in any order): specialty code, provider I.D., date of service, date of review, guideline-audit number, and client.
4. Reviewer Activity Report (PR-640): Presents summaries of each physician reviewer's activity, sorted by guideline, for a specified period. The total number of exceptions evaluated and the disposition distribution is presented for each reviewer for each guideline.

5. Provider Performance Profile (PR-650): Provides a summary of Medicaid services provided by physicians, and a tally of the number of times each of those services was flagged as an exception. The report also contains normative comparison data of services and exceptions recorded for the provider's specialty and by all physicians in the provider's county.
6. Provider Exception Summary Report (PR-680): Furnishes a summary of exception activity by provider for a specified time period. The report is sorted by provider specialty code, by provider and then by guideline-audit number.
7. Guideline Exception Summary Report (PR-681): Furnishes a summary of exception activity by guideline and audit number for a specified time period. The information contained in PR-681 is the same as in PR-680; however, it is sorted first by guideline-audit number and then by specialty code and provider.
8. Guideline Report (PR-690): Provides a description of the guidelines active in the PACE Criteria Evaluation System at any point. The report is a narrative description of each audit which has been defined for each guideline.
9. Guideline Description Report (PR-691): Contrary to its title, this report provides a list of all guidelines sets and their associated audits. It does not describe the guidelines or audits in narrative form.

In addition, special studies may be requested by a physician reviewer, a review committee or a specific committee administrator. They may be motivated by new medical research information or apparent problems that have shown up frequently in the review of exceptional profiles. Data for special studies are obtained from the Reviewer Request program.

PACE REVIEW PROCESS

Review Coordinator Activities

After profiles are sent to UPRO, they are read by the review coordinator who identifies obvious errors and corrects them. Data incorrectly entered will generate history file transactions. Corrections are then entered to update the Claims History File and, if necessary, the Exception Message File. To expedite physician review, corrections may be handwritten and forwarded to the physician reviewers. The coordinator also applies manual review guidelines developed and approved by the PACE Advisory Ambulatory Care Review Committee or the Quality Evaluation Committee.

Physician Reviewer Activities

The intent of physician review is to identify and ultimately evaluate patterns of medical care at variance with established guidelines. Each physician reviewer evaluates patient treatment (according to the patient and provider profiles) in comparison with established criteria. Each exception is indicated on the profile by a flag number linking the exception to a message defining the problem source. Exceptions which have already been evaluated are indicated by the presence of the review disposition, the review date and the reviewer's initials. Dispositions are identified by the physician reviewer marking an "X" in the appropriate disposition category. Dispositions are then added to the History Correct Program, which updates the PACE Suspense File, Claims History File and Exception Message File and prints each review disposition made that day in an audit report. In addition, each review disposition causes a record to be added to the Review Disposition File. This file is then added to the MMIS Suspense File causing a release for payment or denial.

There are seven disposition options for the MMIS-PACE Module. According to the documentation, the physician reviewer makes not only a medical evaluation, but also executes UPRO policy by deciding what type of feedback should be given to the physician in question and whether any payment related sanction is needed. By choosing a particular disposition, the physician reviewer automatically indicates his intended feedback action. The disposition choices for exceptions are as follows:

1. Review Unnecessary: Any flagged medical care containing this disposition requires no further review and this flag should be deleted from patient and provider histories.
 - a. Follow-up action by reviewer: Normally all exceptions of these types will be cleared during preliminary review done by Review Coordinators. However, when first encountered by physician reviewers, they should be brought to staff's attention.
 - b. Follow-up action by staff: Log in any coding errors, see they are corrected, and see that system flaws are remedied.
2. Medically Appropriate: Although the care did not match screening parameters, it was appropriate given the circumstances of the case. The claim is cleared for payment.
 - a. Follow-up action by reviewer: Generally, no follow-up is required. However, in some cases, a recommendation for re-evaluation of the guideline or for a coding change may be necessary.
 - b. Follow-up action by staff: Bring any problems relating to guidelines to appropriate specialty group and make necessary coding and specification changes. Forward these to OSI for data processing.

3. Review Inconclusive: Information available was not sufficient to make a conclusive determination about the appropriateness of medical care involved. If a new claim is involved, this choice clears it for payment.
 - a. Follow-up action by reviewers: Normally, follow-up action is not required, nor is the provider notified of the disposition.
 - b. Follow-up action by staff: Monitor the use of this choice for purposes of evaluating the PACE concept and the guidelines involved and identify situations which require physician reviewer attention.
4. Not Provider Fault: Medical care did in fact vary from guidelines but the exception appears to have been caused by factors outside the knowledge or control of the flagged provider. This choice will also clear suspended claims for payment.
 - a. Follow-up action by reviewer: Define the type of communication, if any, which should be sent to the provider bringing the problem to his attention and asking for his assistance in resolving the situation. Recommend any broad educational feedback to the general professional community which might be appropriate.
 - b. Follow-up action by staff: Prepare necessary correspondence and file a response.
5. Inappropriate Care - Education: Exceptional care was in fact not warranted by the circumstances of the case. It appears that an educational effort with the provider would be productive and that no payment penalty is needed.
 - a. Follow-up action by reviewer: Make a direct contact with the provider or request that a letter be sent to explain the guideline, its rationale, and the practice which deviated. The provider's response should be requested and where appropriate, recommendations made for general educational feedback.
 - b. Follow-up action by staff: Prepare correspondence and file any response.
6. Inappropriate Care - Warning: The exceptional care in question is either another instance of an unjustified pattern of practice or by itself represents a gross departure from acceptable medical practice. This code will still clear an unpaid claim for payment.
 - a. Follow-up action by reviewer: Make a direct contact with the provider or request that a letter be sent to inform him that future claims for this kind of care cannot be medically certified for reimbursement. Again, a response from the provider should be requested. Define parameters for a temporary screen to suspend any subsequent claim of the same type by that provider in case payment penalties must be imposed.

- b. Follow-up action by staff: Prepare such a letter and file the response. Prepare and transmit a request for temporary screen. Monitor all care by that provider.
7. Inappropriate Care - Provider Fault - Denial: Do not pay this claim. Note: This choice can only be recorded for claims suspended by the State (i.e., those being reviewed on a prepayment basis).
- a. Follow-up action by reviewer: Request a letter to the provider informing him of UPRO's action and methods of recourse open to him and, if necessary, modify front-end screening parameters set up to catch new claims involving similar care.
 - b. Follow-up action by staff: Prepare correspondence. Transmit temporary screening parameters. Monitor all care by that provider.

Overseeing the physician reviewers is the responsibility of the Ambulatory Care Review Committee. If a provider is dissatisfied with the decision of the review physicians, appeal is made to this committee. In addition to this function, the committee has the following responsibilities:

1. The committee consists of the following primary care disciplines: family practice, internal medicine, obstetrics-gynecology, and pediatrics. Representatives from other disciplines may be appointed as necessary by the PACE Medical Advisor.
2. The PACE Medical Advisor serves as chairman of the committee.
3. Meetings of the committee are normally held twice a month at 12:15 p.m. on the second and fourth Tuesdays at UPRO headquarters.
4. In accepting an appointment to the Committee, members assume the following obligations beyond those of other reviewers:
 - a. To spend at least an hour each week performing review
 - b. To attend Committee meetings regularly
 - c. To make suggestions whenever possible regarding guidelines, special studies, matters to be communicated to the state, subjects for general educational communications and other agenda items for the Committee
 - d. To sign, as needed, letters from the Committee to physicians who apparently have disregarded previous educational correspondence
 - e. To participate, as needed, on special panels to prepare educational materials, to hear appeals, etc.
5. Attendance at Committee meetings is vital to the success and credibility of the PACE program. For this reason, Committee members and guests specifically invited to present information on agenda items will be reimbursed for their attendance. All reviewers are welcome at Committee meetings.

6. Members are expected to notify staff if they will not be able to attend and should solicit the attendance of another reviewer from their specialty in their place.
7. If, for some reason, a member finds it impossible to continue on the Committee, he should notify the PACE medical advisor. Members who miss three consecutive meetings without being excused will be replaced by the PACE medical advisor after appropriate consultation.

STRUCTURE OF THE MMIS-PACE MODULE

The requirements for this module have been developed in logical groupings of processing functions and related activities. There are seven groupings called submodules. Each submodule serves as a point of entry for various data elements that are collected, processed and displayed on one or more outputs from the MMIS-PACE Module. They are as follows:

1. Processing Submodule
2. Provider Subsystem (MMIS)
3. Criteria Evaluation Submodule
4. Review Feedback Submodule
5. Reference File Subsystem (MMIS)
6. Review Request Submodule
7. Maintenance and Update Submodule

They are described as follows:

1. Processing Submodule

The processing cycle for the PACE Module begins with the UPRO Review File generated by MMIS. The functions involve editing and addition of claims to the Claims History File and the maintenance of chain points for providers and patients in the Provider File and Patient File.

2. Provider Subsystem (MMIS)

The Provider File is used by the PACE Module to identify, classify and store certain statistical information pertinent to PACE regarding providers in the Medicaid program. The Provider File is consequently used in editing claims, in furnishing backup information used in the medical evaluation process and in identifying claim and exception tallies as well as location of claims in history for individual providers. Although the PACE Module could share the Provider File with MMIS, operational considerations require that PACE use a copy of this file. The MMIS periodically furnishes a

tape copy of the Provider File to the PACE Module for updating the PACE Provider File.

3. Review Feedback Submodule

This submodule provides the capability to modify medical care guidelines and history data in the PACE Module as a result of review. This submodule also furnishes the feedback linkage to the MMIS Claims Payment System with a pay or no-pay disposition. The three functions, claim validation and correction, physician review, and criteria guideline changes are also incorporated in this submodule.

4. Reference File Subsystem (MMIS)

The Reference File provides the PACE Module with valid Procedure, Drug and Diagnosis information for use in the claims evaluation and reporting processes. All the maintenance of the Reference File is performed by the MMIS. Although the PACE version of the Reference File is a copy of the MMIS Reference File, the PACE version does not reflect deletions made to the MMIS Reference File, since older claims stored in the PACE History File may contain diagnosis, procedure and drug codes which have been deleted from the active MMIS files.

5. Review Request Submodule

This submodule is designed to allow flexibility in the retrieval of historical information on file. The submodule can present information in several ways on an "as needed" basis. They are profile requests, summary reports, etc. - as discussed previously.

6. Maintenance and Update Submodule

This submodule contains those functions which are a necessary component of any data processing system, although not considered an integral part of the normal processing cycle. It provides backup and recovery procedures, file reorganization, Patient, Master and Patient Cross-Reference File maintenance capability, and a means of printing the contents of various files used by the PACE Module.

OPERATIONAL STATUS

To partially assess the operational status of the UPRO-PACE system, investigators reviewed and abstracted minutes from the Ambulatory Review Committee. The minutes of these meetings covered nine months and 15 meetings.

The minutes do not necessarily describe specific operational aspects of the PACE computer system, but do describe the activities of a professional review committee using PACE generated information as a basis for actions.

While the UPRO-PACE system is concerned with professional review of Medicaid care in Utah, equally important aspects of PACE operations deal with research of an ambulatory review method and the application of an automated system to such review. The previous section describes the PACE method and functions, but it is important to note the results of such method and automated processing for ambulatory review.

Generally, the PACE review system is operating as outlined in the previous section; however, because the system is complex, constant revision is conducted by UPRO personnel making a specific operational status difficult to describe. During the major system revision for MMIS-PACE integration (July 1974 to September 1975), both UPRO and OSI personnel invested substantial resources. The purpose of the redesign for MMIS-PACE integration resulted in increased software capability and expanded criteria items. This section will describe the results of that investment in terms of actions taken by UPRO based on PACE generated data and assessment.

The Ambulatory Care Review Committee (ACRC) minutes are outlined according to specific action items and discussion topics within each meeting. Action items contained in the minutes should provide an indication of the type and level of committee review activity; however, this is not to say all UPRO operational activities were documented in ACRC minutes. The contents of minutes are outlined below beginning with the earliest meetings. In terms of attendance, the usual pattern included the chairman, several review physicians, several PACE staff members and some guests. Meetings usually last an hour and a half.

Meeting #1 (October, 1975)

- a. Two medical guidelines developed
- b. Discussion of guidelines to govern sending warning letters to providers

Meeting #2 (November, 1975)

- a. Discussion of policy for transmitting drug usage information to state medicaid personnel

Meeting #3 (December, 1975)

- a. One medical guideline developed

Meeting #4 (December, 1975)

- a. Three warning letters sent to provider regarding three different drug usage cases, because patients received same treatment after an initial educational letter was sent to provider

Meeting #5 (January, 1976)

- a. Discussion of three drug usage cases to be presented to state
- b. Approval of educational correspondence format
- c. Three warning letters approved to be sent out to providers
- d. One medical guideline recommended for input to PACE

Meeting #6 (January, 1976)

- a. Discussion of Committee's investigative approach for excessive drug usage
- b. Discussion of different drug criteria
- c. One new medical guideline recommended for input to PACE

Meeting #7 (February, 1976)

- a. Five problem provider profiles and committee physician telephone contacts with those providers discussed. Three referred to state and two to be recontacted by committee
- b. Four medical guideline revisions discussed

Meeting #8 (March, 1976)

- a. Three drug abuse cases and committee physician telephone contacts with case providers discussed. All three cases referred to state
- b. Four medical guideline revisions discussed
- c. General discussion of committee follow-up procedures to providers identified in review process
- d. Committee reviewed frequencies of diagnosis and procedures for Medicaid population

Meeting #9 (March, 1976)

- a. Three drug usage cases discussed, committee physicians assigned to contact providers
- b. Three drug usage follow-ups discussed, including discussion of committee physicians telephoning case providers. Two cases referred to state, one to be followed up by ACRC chairman
- c. Two medical guideline revisions discussed

Meeting #10 (April, 1976)

- a. Four drug usage follow-ups discussed, including discussion of committee physicians telephoning case provider. All four cases referred to state Medicaid personnel
- b. Five medical guideline revisions discussed

Meeting #11 (April, 1976)

- a. Four drug usage cases discussed, three referred to state Medicaid personnel for action
- b. Five drug usage case follow-ups by state Medicaid personnel discussed, committee physicians further discussing ways to improve the State's resolution of such problem cases
- c. Five medical guidelines revisions discussed

Meeting #12 (May, 1976)

- a. Three drug usage cases discussed
- b. One "physician shopper" case was discussed
- c. Six drug usage follow-ups were discussed, including assigning committee physicians to telephone these providers and discuss case characteristics
- d. Three medical guideline revisions were discussed

Meeting #13 (May, 1976)

- a. Four drug usage cases were discussed, although no action was noted
- b. Three medical guidelines revisions discussed, and changes made
- c. Two educational correspondences sent out and a discussion of one physician response was noted

Meeting #14 (June, 1976)

- a. Two drug usage cases discussed, although no action was noted
- b. Four medical guideline revisions discussed and changes made
- c. General discussion of educational correspondence to physicians with exceptions

Based on the minutes, the level of activity attributed to PACE seems high. Minutes do not cover the feedback and action activities of all review physicians, although some of that activity is noted. Review physicians are responsible for telephoning providers who have been identified through the review process as being a recurring problem in one area (both drug usage and prescription patterns).

As documented above, the committee activities centered on drug usage. The interaction between the state and UPRO seems critical, since after educational telephone calls, UPRO refers most cases to the state.

The minutes reflect varying levels of detail. The earlier minutes were less detailed than the later minutes, perhaps reflecting the increased activity of the entire review system. The minutes only reflect these activities of the PACE, although some review actions could have been conducted by different organizational components of UPRO.

SECTION III

H C M S S T U D Y I N F O R M A T I O N

The Utah Professional Review Organization was included in the study because it is one of two existing PSROs conducting ambulatory quality review. The documentation used to provide an overview of the system and to substantiate many points discussed during the interviews is as follows:

1. Listing of the PACE Physician Reviewers
2. Selection of Evaluation Choices and Notes on Review Evaluation Choices (April 16, 1976)
3. Flow chart of the Regular Pace Processing Cycle (May 26, 1976)
4. Grant application to the Department of Social Services for the implementation of the Physician Ambulatory Care Evaluation Module Program (April 29, 1975)
5. Utah Medicaid PACE Module (June 16, 1975) presented to UPRO by OSI containing:

Volume I - Requirements Analyses
Volume II - Design Considerations
Volume III - Module Description
Volume IV - Schedule of tasks

6. Memo to file from James Cannon about the Frequency Listing of Diagnoses, Procedures and Drugs (March 1, 1976)
7. List of Specialty Codes and Abbreviations
8. Letter addressed to E. Woehrmann from OSI about the hardware description and cost (January 23, 1976)
9. Responsibilities of PACE Advisory Committee (February 10, 1976)
10. Letter and article sent to physicians from the Academy for Continuing Education regarding the use of injectable penicillin (October 15, 1975)
11. UPRO-PACE Guidelines Description Report (March 16, 1976)
12. Paper written by E. Woehrmann documenting flow of claims data in MMIS and PACE system (April 19, 1976)
13. Various output forms
14. Health Care Management Systems, Inc., Evaluation Report: Physician Ambulatory Care Evaluation Module Volume Four: Interim Cost Study - 1975, March, 1976

HCMS staff visited UPRO on May 27 and June 1 of 1976 and interviewed the following personnel:

1. Executive Administrator
2. Director of Operations
3. PACE Project Manager

4. Medical Advisor to PACE Advisory Ambulatory Care Review Committee
5. Review Coordinator

The following topics were covered during the interview:

1. Funding mechanisms for PACE
2. Development of PACE via OSI; UPRO interaction
3. Relationship between PACE, State Medicaid Program and MMIS
4. Responsibilities of staff with regard to PACE program
5. Number of claims filed monthly
6. Quality Evaluation Committee functions with regard to the establishment and revision of criteria
7. Screening process
8. Physician Reviewers' and PACE Advisory Ambulatory Care Review Committee functions with regard to review process and decision-making
9. Reports generated through PACE
10. Disposition of claims
11. Educational feedback mechanism
12. Recent refinements in PACE
13. Feasibility of UPRO-PACE in other settings
14. Future PACE operation

NEW MEXICO PROFESSIONAL STANDARDS REVIEW ORGANIZATION

Albuquerque, New Mexico

SECTION I

I N T R O D U C T I O N

The New Mexico Professional Standard Review Organization (NMPSRO) was officially established and incorporated in 1973, having evolved from the New Mexico Foundation for Medical Care (NMFMC) established in April, 1970. The NMFMC grew out of efforts by the New Mexico Medical Society to explore the possibility of organizing a medical care foundation in New Mexico. The impetus for development originated with a group of Medical Society physicians interested in examining a formal approach to monitoring medical care activities.

During this time, the New Mexico Medicaid program was undergoing a fiscal crisis involving rising Medicaid costs. There was pressure on the state Medicaid agency and the Health and Social Services Department (HSSD) to control costs. The state's Medicaid fiscal agent was apparently unable to adequately control and project the costs.

Soon after NMFMC's establishment, HSSD expressed an interest both in employing a new fiscal agent and in contracting with the NMFMC to provide professional review of Medicaid cases. NMFMC physicians were not passive in these developments; they were also dissatisfied with the Medicaid program and welcomed the opportunity to perform professional review. Once a new fiscal agent was chosen, the state wrote independent contracts with NMFMC for professional review and with the agent for claims processing and payment.

A second significant development was the award of an Experimental Medical Care Review Organization (EMCRO) grant to NMFMC in March, 1972. The EMCRO goals were incorporated into the NMFMC overall plan to conduct professional review, but required NMFMC to conduct certain research and development evaluation activities. Research and development focused on establishing and testing (a) an automated institutional claims review system and (b) alternatives for performing professional review. Evaluation activities included examining various practice and utilization patterns for Medicaid providers and recipients. The EMCRO funding continued through February, 1975.

The passage of PSRO legislation (P.L. 92-603) precipitated the development of the NMPSRO as a distinct organizational unit. This organization absorbed the professional review functions of NMFMC. In April, 1974, NMPSRO applied for designation as New Mexico's conditional PSRO, with the NMFMC personnel playing a concurrent role in the PSRO's development. Before receiving conditional status in November, 1974, NMPSRO was required to go through the polling process since more than 10% of the licensed physicians (12%) objected to the proposed

designation. The results of the poll were that 73% of those voting approved the designation.

The following section describes the chain of events in development of the present ambulatory review system.

SECTION II

QUALITY ASSURANCE PROGRAM

BACKGROUND

In August, 1975, the New Mexico PSRO was granted \$441,000 from the Social Rehabilitation Services (SRS), Department of Health, Education and Welfare, to implement a claims-based ambulatory review system for Title XIX provider and patient populations.

Prior to development of this system, professional review of Title XIX services was performed by the New Mexico Foundation for Medical Care (1971). This original review scheme was taken over by the New Mexico PSRO (November, 1974), which conducted prepayment review of all Medicaid claims submitted for payment. At this time, one multipurpose claim form was used, requiring providers to write in diagnostic and therapeutic information. Review entailed a manual, clerical audit of each claim by comparing claim data with explicit guidelines developed by NMPSRO physicians. The guidelines defined ranges of procedures (services, treatments) for specific diagnoses. When the clerical examiner discovered claims which violated the guidelines, the claims were referred to physicians for professional review. Professional review decisions fell into five categories: (a) return the claim for further information, (b) refer to another reviewing physician, (c) refer to a panel of physicians, (d) deny payment and (e) grant payment.

Throughout NMPSRO's implementation of a 100% review system, questions were raised regarding the cost effectiveness of conducting total claims review. In late 1974, the NMPSRO Research and Development Committee began to study the system's effectiveness. This analysis focused on the massive amounts of data collected during the EMCRO program and possible redesign of the 100% claims review system.

NMPSRO personnel indicated that the Bureau of Quality Assurance (BQA), Department of Health, Education and Welfare, informed the State of New Mexico that a more efficient and less costly review system had to be implemented for additional federal funding to be appropriated for review. Both NMPSRO and Dikewood Industries (Title XIX fiscal agent for the state) were responsible for system redesign, with assistance from several external organizations and individuals. Between March and May, 1975, it became evident to NMPSRO and Dikewood personnel that such a system redesign should take place on a gradual basis over a twelve-month period. Funding limitations, however, forced system revision to take place more quickly in July, 1975, constraining the time for detailed preparation.

The first major system revision involved the development of precoded claim forms to be used by providers. As noted above, the New Mexico Medicaid system had been using one multipurpose form. There were several distinct reasons noted for moving to a precoded form: (a) HSSD wanted to reduce the time in claims processing and payment, hopefully to make it more cost-efficient, (b) a more accurate method for capturing claims data was needed, and (c) it was felt that reducing the amount of manual coding by NMPSRO personnel might reduce coding errors. Because the old Medicaid forms required providers to write in

claims information, NMPSRO coders often had difficulty interpreting the problems or diagnoses and procedures indicated by providers. Due to NMPSRO's position that manual coding should be handled by the professional review organization, HSSD had originally contracted with NMPSRO to do all coding of claims information (rather than with Dikewood, the Medicaid fiscal agent).

The new precoded form was developed principally by NMPSRO personnel, with assistance from HSSD and Dikewood personnel. After initial development of the form, NMPSRO pretested the pediatrics form on four physicians. NMPSRO reported the pretest was generally successful. The one significant problem in the development of the form involved printing the form accurately. Since HSSD was responsible for printing the form, a state printing contractor was required to do the printing. The printer was located in another state, leading to significant difficulties and delays in completing a final draft of the form.

Once the new precoded form was finalized (August, 1975), NMPSRO identified a portion of the physician population to begin a phased implementation program. NMPSRO indicated 133 physicians are currently using the precoded forms, and 75 to 80% of the forms are going through the system without major processing problems. NMPSRO and Dikewood personnel developed an information booklet for providers to follow, and conducted some training in physician offices. NMPSRO personnel indicated there had been problems distributing new forms to the right providers, and that some of the high utilization providers had not yet received forms.

The second major revision dealt with eliminating 100% review of all Medicaid claims. Two types of review are now occurring:

1. Focused prepayment review of approximately 10% of the Medicaid provider population
2. Retrospective review, identifying providers with ten or more encounters during a six-month period for a single diagnosis

The prepayment review mechanism identifies providers who have previously had a high rate of claims denial. After the system was in operation, the retrospective system component identified providers to be reviewed before payment. During the 100% prepayment review, approximately 60 physicians had a high claim denial rate. These physicians made up the review population (approximately 10%) for the new prepayment review. All claims in this group are reviewed by the review coordinator and then by one of the review physicians. The specific procedural steps, outlined by NMPSRO personnel, are:

1. A clerical examiner reviews the claims against processing and eligibility guidelines referring cases which fall outside the guidelines to professional review.
2. The review coordinator reviews each claim to ascertain whether any problems lie in the provider's service.
3. If a problem is cited, the review coordinator catalogs the problems by specialty groups. The review coordinator uses a CRT terminal to request provider history to accompany the data being consulted by the review physician during his assessment.
4. The review coordinator schedules sessions for NMPSRO review physicians.

5. The review coordinator accompanies the physician reviewers while review is conducted (to insure that the physician documents reasoning for his or her medical judgment).
6. If review reveals inappropriate care, the physician is denied payment for the services in question.
7. Unusual or outstanding cases, as well as appeals of payment denial, are brought before the Ambulatory Care Review Committee as to appropriate action.

One of the most important functions of prepayment review is to allow denial of payment for overutilization of services. Denial is decided upon at the physician reviewer level.

All Title XIX providers providing care to eligible recipients are subject to retrospective review. Providers identified through retrospective review as high utilizers may be placed on prepayment review. Retrospective review begins with the review coordinator examining a list of diagnoses with the highest frequencies. This information was based on four years of data collected through the EMCRO program. More specifically, a diagnosis frequency report from the EMCRO ambulatory care data tapes is perused by the review coordinator. Once the review coordinator identifies the diagnosis topic to be reviewed, she requests recipient and provider profile information from Dikewood that lists all physicians who have had 10 or more patient encounters for the chosen diagnosis during a six-month period. Retrospective review uses three reports, called Level I, Level II and Level III reports. Once the review coordinator chooses a diagnosis (or similar diagnostic group) for review, she will request the Level I report. This report divides providers into the 10th, 50th and 90th percentile groups and has ten columns for data reporting. The first three columns are fixed, and note the following information for each diagnosis:

- Column 1 - Physician identification number
- Column 2 - Number of patients encountered by the provider for the identified diagnosis
- Column 3 - The number of encounters per patient for the identified diagnosis

The tenth column is also fixed, and notes the cost per patient for that specific diagnosis, based on information in the other columns. Columns four through nine are variable and any element or combination of elements of care may be obtained as long as they are captured in the New Mexico Medicaid Management Information System, including:

1. Laboratory tests
2. Injections
3. Prescriptions
4. X-rays
5. Outpatient surgical procedures
6. Electrocardiograms, etc.

The variable columns allow the review coordinator to request several Level I reports for any given diagnosis. For initial Level I analysis in the retrospective system, the review coordinator requests a "standard default" format.

This format includes five basic areas in the variable columns which the review coordinator uses to identify those providers who require more focused Level I reports, as well as Level II and III reports for more indepth review. The five "standard default" format elements are:

1. Laboratory tests per patient
2. X-rays per patient
3. Prescriptions per patient
4. Injections per patient
5. All others per patient

The review coordinator also consults physician review specialists and uses medical textbooks to determine therapy and diagnostic elements that are specifically contraindicated. These elements all become columns in as many Level I reports as are required to examine the diagnosis completely. In this way, specific treatment patterns that might not otherwise appear can be examined. Documents note that the coordinator uses the New Mexico Criteria for Outpatient Care, in consultation with reviewing physicians, when requesting different combinations of categories (e.g., different types of lab tests, different injections, etc.). For example, she could request viewing six specific types of injections for a specific diagnosis in the variable columns. The analysis of that request would then be based on those injections compared with the diagnosis, not including laboratory tests or prescriptions.

All Level I reports are divided into three statistical distributions, 10th, 50th and 90th percentiles. The review coordinator will focus analysis on the two extreme percentiles for each category of service. Level I reports are reported by different sorting processes. For example, if the review coordinator wanted Level I sorted for prescriptions, the column with prescriptions per patient would be ranked from highest to lowest users (90th, 50th, and 10th percentiles). The review coordinator could then examine this column and cite over or underutilization. The review coordinator is supplied with printouts showing all the columns sorted from highest to lowest in utilization.

After the review coordinator reviews the Level I reports and cites physicians, she orders Level II and III reports for further review of the cases to determine the validity of the citing. When examining Level I, the review coordinator employs a cite sheet. The cite sheet has several informational points: (a) dates of review, (b) diagnosis order review, (c) cited physician's identification number and (d) indication for high or low utilization. There are seven columns in which the review coordinator can indicate the citation for the physician (e.g., injection, laboratory tests, etc.).

Level II reports, by physician and primary diagnosis, detail an individual physician's performance along six elements of care, comparing the performance of a "cited" physician with computed medians for the rest of the Medicaid provider population who had at least ten patient encounters in the period of review. Level II reports are divided into four sections:

Section 1 gives an introduction and explanatory comments for the following sections

Section 2 details the physician's performance, over the six-month period of review, comparing it with the median of the provider population for nine elements:

- (a) Number of patients
- (b) Number of encounters
- (c) Encounters per patient
- (d) Number of services
- (e) Services per patient
- (f) Services per encounter
- (g) Number of dollars paid
- (h) Dollars paid per patient
- (i) Dollars paid per encounter

Section 3 provides a matrix for comparing the physician with the provider population for number per patient, number per encounter and percent of patients for the following elements of care:

- (a) Visits
- (b) Laboratory tests
- (c) X-rays
- (d) Prescription drugs
- (e) Injections
- (f) Other procedures

Section 4 provides the same comparison as in Section 3, but specifies for the seven elements of care up to five individual procedures, always having as a final element "all other" procedures.

The review coordinator examines Level II reports and circles or checkmarks the physician population medians where problems may exist.

After reviewing this report, the review coordinator will then review Level III reports. Level III reports list by diagnosis every encounter in the six-month review period for a physician under review. This report details seven data elements:

- 1. Patient number
- 2. Sex
- 3. Age
- 4. Date of service
- 5. Secondary diagnosis
- 6. All outpatient procedures
- 7. Prescription drugs

Based on the analysis of Level II and III reports, the review coordinator will decide whether to forward the case to the physician reviewers. If the provider's treatment pattern is comparable to the population median and criteria are not violated, physician review is not necessary. If any problem is identified, the case is scheduled for medical review. This decision to forward cases for physician review is left to the review coordinator, and there is currently no

systematic format for reaching this decision. NMPSRO personnel indicated that since the provider population is relatively small and the variance situation fairly clear-cut, the review coordinator has the ability and experience to make such a decision.

Once the review coordinator decides physician review is necessary, she attaches a form to the reports which includes space for the following information:

1. Number of physician being reviewed
2. Specialty
3. Address
4. Elements of care reviewed
5. Review coordinator comments
6. Physician reviewer comments
7. Physician reviewer decision - six separate actions are possible
8. Physician reviewer signature
9. Date of review

This form essentially documents the review process. The review coordinator contacts the reviewing physician, schedules a session and attends the session with the physician. The reviewing physician has six choices of action:

1. Forward case to physician for prepayment review
2. Refer case to Ambulatory Review Committee
3. Refer to another reviewer
4. Contact reviewed physician for more information
5. No action
6. Refer case to Education Committee

The review coordinator must attend review sessions in order to insure that the reviewing physician documents the reasons for his decision. NMPSRO personnel indicated that the medical guidelines and PSRO policy developed for the specific diagnosis or for certain procedures should aid the reviewer's decision, since the initial variance decision was based on those guidelines.

After completion of physician review, the two professional committees may begin their role in the review process. A reviewer can make a decision to forward a case to the Education Review Committee, the Ambulatory Care Review Committee, or both. Essentially, a reviewer determines whether the nature of the problem is an educational matter or concerns utilization. The education issues will normally be forwarded to the Education Committee, which takes appropriate action. Utilization issues are forwarded to the Ambulatory Care Review Committee, which implements corrective action. There have been instances in which both committees have taken simultaneous action on a case, or one committee has referred a case to the other committee. The review coordinator, who monitors the status of cases going through the system, has several data flow sheets which document the status of each case. The review coordinator attends both education and ambulatory review meetings.

Education Committee

Documents note the Education Committee is composed of eleven reviewing physicians. Once the committee receives a case forwarded by a review physician for educational purposes, the committee must initially decide whether education is appropriate. If the committee decides an education program should be implemented, they must then decide what type of education is necessary. There are several options:

1. Send a letter
2. Send a letter with literature attached
3. Ask the physician to come for an educational exchange session with NMPSRO physicians

In terms of documenting operational status of the system, HCMS study staff abstracted information from a recent NMPSRO status report and substantiated the report by reviewing all Education Review Committee minutes.

The Status Report of the Ambulatory Review System (February 3 to May 6, 1976) presented the following information:

Education Committee Members Hours - 28-1/4
Letters to Providers - 27
Referrals to Education Committee, but no action taken - 19

The Status Report also indicated each committee held four meetings between February and May, with good attendance. There were three physician replies to Education Committee actions. In each case, the committee responded to the reply, and they monitored each case.

Ambulatory Care Review Committee

The Ambulatory Care Review Committee (ACRC) is composed of twelve physicians. The basic function of the committee is to review cases referred by physician reviewers in which utilization issues seem paramount, and to decide whether a physician should be placed on prepayment review. If a physician is placed on prepayment review, the ACRC chairman sends a letter to the physician indicating the reasons for which he has been placed on review and the effects of such review on claims processing. ACRC also governs and monitors reviewing physicians. For example, if a reviewer seems to be referring cases to committee unnecessarily (or unnecessarily denying payments in prepayment review), ACRC will review his cases and take appropriate action.

When the review system became operational in February, 1976, 60 physicians were on prepayment review. Since that time, the Ambulatory Review Committee has placed an additional four physicians on prepayment review.

Title XIX Claims Processing

As indicated, the New Mexico Medicaid system is processing both precoded and nonprecoded claims. Nonprecoded claims enter the system at Dikewood directly

from providers and receive a batch number. Initial entry of all claims information onto the claims file is completed, then claims are sent to NMPSRO for numerical diagnostic and procedure coding. If a claim is flagged for prepayment review, it is given to a NMPSRO claims examiner, who reviews the claim against guidelines and checks patient history through a computer terminal. If guidelines are violated or the patient history looks questionable, the claim is referred to the review coordinator. In the interim, excepted claims are sent to Dikewood for second entry (complete data capture), and then are returned to the NMPSRO review coordinator for review (designated as "pending" claims).

Precoded claim forms are separately batched for entry by Dikewood. The fiscal agent screener examines all precoded claims prior to any entry. If problems are identified, the claim receives only initial entry. If no problems exist, full data entry is attempted. When a claim cannot be completely entered, the data entry person notes the problem code shown on the computer terminal and routes the claim for correction. If claims are excepted for medical review or coding purposes, the data are forwarded to NMPSRO. If such claims are not excepted (for prepayment screening, eligibility, problems, etc.) full data entry will be completed and microfilming will occur.

Once both types of claims are fully entered, Dikewood processes them for payment. Beyond the programming functions involved in review of claims for medical appropriateness, there are numerous edits and screens in pricing and payments processing, but these relate only to Dikewood's functions as a fiscal agent.

ADDITIONAL COMMENTS

Although NMPSRO's ambulatory review system is fully operational (except for the fact that not all Title XIX physicians are using precoded forms), NMPSRO is still "debugging" the system and making minor system adjustments. Further, several NMPSRO personnel indicated that the implementation of the new system was beginning to strain internal physician time and NMPSRO executive management of the program. This was attributed to lack of knowledge regarding specific system operations, which is not serious, but puts NMPSRO line staff personnel in a position of making decisions regarding the system on a daily basis. Physicians and top NMPSRO management are essentially twice removed from direct system operations, and HCMS study staff could not document routine staff meetings between line staff and top management in order to assess the present functioning and future direction of the review system.

SECTION III

HCMS STUDY INFORMATION

NMPSRO was included in the study because it is one of the two PSROs conducting systematic review of Title XIX claims. NMPSRO agreed to participate in the study in discussions with HCMS staff.

The following documentation has been received from NMPSRO:

1. NMPSRO organizational chart (April 12, 1976)
2. Education Committee Action Record (form)
3. Ambulatory Review Cite Sheet (form)
4. Quality Review Program (general description of NMPSRO ambulatory review system compiled by HCMS staff, April, 1976)
5. NMPSRO Ambulatory Review Program Budget (August 1, 1975, to July 31, 1976)
6. NMPSRO Ambulatory Review System Description
7. Ambulatory Review Committee minutes (January to April, 1976)
8. Education Committee minutes (September, 1975, to May, 1976)
9. Research and Development Committee minutes (February, 1975, to April, 1976)
10. Ad Hoc Coordinating Committee minutes (January, 1976, to February, 1976)
11. Flow Diagram, Dikewood '307' Form Processing (March 27, 1976)
12. HCMS Evaluation Plan: Scope of Work (revised, August 31, 1975)
13. Health and Social Service Department - Title XIX claim form
14. Status Report, Ambulatory Care Review (February 3, 1976, to May 6, 1976)

NMPSRO personnel interviewed:

1. Executive Director
2. Chairman, Research and Development Committee
3. Quality Assurance Program Analyst
4. Review Coordinator, Ambulatory Review Program

Related personnel:

5. Acting Director, Social Service Agency, State of New Mexico
6. Senior Program Analyst, Dikewood Corporation
7. Research Associate, Health Care Management Systems, Inc.

More than ten hours of interview time were spent with the personnel above, with numerous topics covered:

1. Development of NMPSRO's New Ambulatory Review Program
2. NMPSRO experience in EMCRO affecting development of new review system
3. Key participants in the development of present system
4. Discussion of NMPSRO review system in great detail
5. Key personnel who operate the review system

6. Interaction between professional committees and review system processing components
7. Interaction between professional committees
8. Specific tasks of NMPSRO personnel in ambulatory review
9. Role of Title XIX fiscal agent in review system
10. Management problem areas in review system

BETH ISRAEL AMBULATORY CARE PROJECT

Boston, Massachusetts

SECTION I

I N T R O D U C T I O N

In 1969, Beth Israel Hospital joined M.I.T. Lincoln Laboratories to implement the Ambulatory Care Project. The Beth Israel Ambulatory Care Project (ACP) was contracted to develop a series of chronic and acute medical care protocols, implement those protocols, evaluate their effectiveness and train health paraprofessionals for use of the protocols. The project was conducted under contract between the Department of Health, Education and Welfare (DHEW) and the M.I.T. Lincoln Laboratory. Beth Israel Hospital has been a full sub-contracted collaborator throughout the project. The project was conducted under two separate contracts, which together ran from June, 1969, through February, 1976. Funding has amounted to approximately two million dollars over seven years.

This description cannot document or describe each protocol that was developed, nor the number and types of studies conducted to validate the protocols. The objective here is to discuss the important research-oriented components of the ACP in developing medical protocols.

SECTION II

PROTOCOL DEVELOPMENT

CHRONIC DISEASE PROTOCOLS

The ACP staff consisted of electrical and computer engineers and physicians, most of whom had joint teaching appointments at the Harvard Medical School and M.I.T. These skilled technicians and clinically-oriented specialists initially felt an automated computer program could totally administer protocols. Prospective protocol logic promised to be complex, and they felt only an automated system could implement them. Most of the time between 1969 and late 1970 was spent in system design. The protocols were developed by physician consultants, ACP physicians and nurses. Extensive literature reviews and a multitude of discussions were conducted as the protocols went through numerous stages of development. ACP personnel indicated that during the same period, project personnel began to have reservations regarding total automated implementation of all protocols, such as:

1. Patient needs; the chronically ill patients especially seemed to need human interaction in addition to medication
2. The need to perform certain components of a physical examination
3. Computer systems have certain "down" periods that would cause severe problems in the consistent delivery of medical care

The first major breakthrough came in early 1971 when ACP staff visualized a way in which logic could be displayed on paper for manual use, then subsequently put into the computer to analyze whether the complicated protocol logic had been followed. This logic was pursued and in 1972 the protocols, previously developed only for chronic diseases, were transferred from the total computer system to the manual paper system. Two studies were conducted to compare the amount of time spent in administering the computer protocols and the paper protocols. Results were quite similar.

Throughout the automated period, the financial investment was substantial. With the need for less computer programming and the future direction of the protocols decided, the financial demands were lessened.

Once the research focus had been more definitely determined, ACP staff concentrated on protocol development. The contract explicitly identified five chronic medical problems for protocol development:

1. Diabetes
2. Hypertension
3. Cardiovascular
4. Prenatal
5. Pediatric

According to the ACP documentation, a protocol is

"an instrument which describes the appropriate steps to be taken in management of a specific disease or complaint and indicates the appropriate history, physical exam and lab data to be obtained. Once clinical data are obtained, protocols include precise rules for medical action. Protocols include branching logic so that data and actions are individualized according to the patient's clinical picture."

ACP staff undertook to survey specific ambulatory settings to determine the frequency of visits for these various diagnostic categories. The surveys indicated "most common" chronic conditions were hypertension, diabetes, arteriosclerotic heart disease, obstructive lung disease, arthritis conditions and gastrointestinal disturbances. ACP staff confirmed the surveys with several independent studies.

After determining key variables in treatment of chronic disease, ACP staff devised protocols for hypertension, cardiovascular disease and diabetes, assuming a positive diagnosis had been made. Each protocol went through an extensive validation process in four areas:*

1. Medical safety
2. Operational acceptability
3. Physician acceptance
4. Patient acceptance

Each validity area had several research components and studies for determining validity. Documentation notes each protocol had to contain or do the following:

1. List of data (symptoms, signs, test results, etc.) to be collected. Occasionally, the explicit phrasing of questions posed to the patient must be included.
2. Indicate the circumstances under which each datum should be collected, (e.g., certain tests should be performed only for certain symptomatic indications).
3. Allow space for date to be recorded as collected. These data must be displayed in some fashion that facilitate review by physician.
4. List actions to be taken by protocol user (therapies, referrals, instructions to the patient, etc.).
5. Show the protocol user how to infer from the data which of the above actions are appropriate.
6. Simplify format as much as possible.

At the conclusion of this process, documentation notes that a full-scale protocol system began in 1973 at Boston City Hospital Diabetes Clinic and Beth Israel Medical Clinic. During the implementation, all patients presenting the identified chronic conditions were first evaluated by health assistants.

Concurrently with the operational activities, ACP personnel developed an evaluation plan to measure cost and time resource changes for the setting which implemented the protocol management system. The evaluation compared an experimental period when protocols were implemented with other periods when no protocols

*For results of studies refer to Komaroff, A.L., et al., NEJM 290:307-312 1974

were operating. The evaluation examined process and outcome measures of quality, and efficiency questions dealing with amount of physician time saved by employing health assistants using the protocols.

In 1975, the implementation of protocols moved away from the health assistants to the nurse-practitioners and more formally trained physician assistants. ACP personnel indicated the change was made for two basic reasons: (1) nurses who had formalized nursing education were being somewhat supplanted by health workers without education; (2) nurses seemed to want to implement protocols because they were underutilized and it presented a challenge to their training. At present, however, health assistants in other clinics continue to use protocols.

ACUTE ILLNESS PROTOCOLS

Development of the acute illness protocols began in 1972. The chronic disease protocols had been designed to guide the care of patients whose illnesses had already been diagnosed by physicians. In contrast, patients seeking care for new acute illness symptoms might never have been so diagnosed. This raised two fears:

1. If a nonphysician uses the protocol, he or she may overlook important information a physician would be aware of, that the protocol may have missed.
2. Patients do not always reveal the real reason they want medical attention, and a nonphysician may be insensitive to this.

The new contract beginning in 1972 required ACP to develop, validate and document protocols for the following:

1. Triage
2. Urinary tract infection and vaginitis
3. Headache
4. Chest pain
5. Acute gastrointestinal distress
6. Upper respiratory infection
7. General gynecology
8. Rash
9. Low back pain

Again, the ACP had surveyed several ambulatory settings to determine the frequency of certain ambulatory complaints; the results of this survey led to the identification of those symptoms specified by the contract. Protocols were then developed for all problems outlined in the contract by several ACP study teams headed by one general internist familiar with primary care. The same process that accompanied the total development of chronic protocols was duplicated for the acute problems.

Protocol development is an essential feature of the ACP research and implementation efforts. ACP personnel provided investigators with a complete outline used in protocol development. This extensive process is outlined below and notes a series of stages in development and implementation (for testing) of the protocols.

Protocol Development

- A. Outline of the intentions of protocol:
 - 1. Specify what presenting complaints should be addressed by the protocol (entry conditions), and modify accordingly
 - 2. Specify what conditions the protocol "cannot afford to miss" and define the history, physical and lab data most likely to pick them up
 - 3. Specify the conditions the protocol "can afford to miss"
 - 4. Specify the circumstances which warrant referral to the physician
 - 5. Specify the conditions the protocol is expected to diagnose and treat
 - 6. Define the contraindications to therapy and state alternative
- B. Identify prior or analogous protocols developed by others and compare
- C. Lay out first version of the protocol, specifying clinical data to be collected and medical judgments to be made, if deviations from work of others is significant
- D. Prepare standing orders for therapy and instructions for follow-up
- E. Obtain peer review of above by both "experts" and practitioners, with possible subsequent revisions
- F. Perform initial trials to highlight major problems with the protocol
- G. Revise protocol to a "stable" form which will remain unchanged during formal validation study
- H. Assure that the typed copy of the "stable" protocol is accurately laid out

Protocol Validation

- A. Find the "right" sites (e.g. relatively high volume, manageable)
 - 1. Assess volume of patients with protocol illness
 - 2. Assess availability of paramedics to use protocols - either already on site or through ACP
 - 3. Assess adequacy of the necessary laboratory backup
 - 4. Assess availability of and recruit backup physician(s) both to confirm data collected by paramedic and to assess wisdom of medical judgment made by protocol.
 - 5. Establish training time available for protocol users
- B. Get validation under way
 - 1. Explain purpose of validation to all involved physicians, nurses, paramedics, and administrators

2. Arrange for training of nonphysician protocol user(s)
3. Establish mechanism for having backup physicians assess accuracy of clinical data collected by nonphysicians
4. Establish mechanism for checking whether protocol logic has been followed accurately (computer can do this)
5. Establish mechanism for having backup physicians comment on protocol therapy and disposition decisions, or indicate clearly their own decisions (for comparison with protocol)
6. Establish mechanism for comparing protocol judgments with objective measure of their appropriateness, e.g., lab results
7. Establish mechanism for assessing positive and negative clinical outcome by delayed chart pulls, telephoning patients, etc.; specify criteria for measuring clinical outcome (symptomatic relief, objective remission, need for alternative care)
8. Assess which protocol attributes or questions are particularly valuable, and which appear extraneous
9. Assess protocol rate of referral to physician, and extent of both under- and overreferrals
10. If during formal validation study the need becomes apparent for major changes in protocol content or decision logic, give serious consideration to starting validation study over again
11. Prepare report of validation study outcome
 - (a) for internal publication, or
 - (b) possibly for journal publication

Protocol Package Development

Preparation of:

1. Introductory section, directed to physician
2. Explanation of how to follow the protocol's logic scheme
3. Medical rationale, directed to physician, explaining, attribute-by-attribute, question-by-question, why protocol contains or excludes certain clinical data, and why it makes the diagnostic, therapy, and disposition judgments it does
4. Patient education handout
5. Training manual, designed to instruct the would-be user of the protocol, containing descriptions of the relevant anatomy, physiology, and pathophysiology, explanation of the protocol content (simpler than medical rationale) including how to ask certain questions, explanation of how to perform physical examination and laboratory tests called for by the protocol, and glossary of terms

ACP personnel indicated major resources were spent in developing the proper format for the protocols. As indicated earlier, a major decision by ACP personnel was to place the protocols in a manually written format. Once this was accomplished, staff had to concentrate on the exact format for each protocol.

ACP, after much study and experimentation, arrived at a final protocol format which allows "departures from a simple sequential order of events and allows for complex branching."

Implementation of protocols in a variety of settings was an important consideration to the ACP researchers. Successful implementation would require that protocols be functional to health providers and administrators in provision of medical services. Because use of protocols develops an extensive data base, this data base can assess aggregate performance of providers utilizing protocols. An example of this type of activity is the production of summary statistics and interrogation of the data base. An example of this activity is the following:

1. Summary Statistics: Aggregate data are provided monthly for each protocol by type of provider and type of protocol user.
2. Summary Slot Statistics: Aggregate data are provided monthly for each protocol by the number of errors for every question of the protocol.
3. Interrogation of the Data Base: Using the data retrieval program, it is possible to search the data base for the following questions:
 - a. How frequently do various complaints occur for each protocol?
 - b. How frequently do various symptoms occur, either singly or in conjunction with others?
 - c. How often do various physical exams or lab test findings occur?
 - d. How do certain findings or clusters of findings relate to a given defined diagnosis end-point?

This program also answers these developmental questions:

- a. For a given medical problem in a homogeneous population, when findings of users vary significantly, does this suggest inappropriate use of protocol by some users?
- b. What branch points in the protocol constitute major reasons for referring patients to physicians, and can this referral rate be reduced?

Combining the data base information with other observations, it is possible to determine how medical treatment resources were expended by answering the following:

1. How much direct professional time is used to care for a patient?
2. What proportion of total costs are expended on medicine, protocol-initiated lab tests, and professional time?

Thus far, interrogation data base analysis have been tested for the upper respiratory infection and urinary tract infection-vaginitis protocols.

Auditable Checklist

As indicated, ACP's critical concern is the successful implementation and use of the protocols. While the protocols facilitate auditing of medical care because the structured recording of clinical findings guide practitioners in care, ACP personnel discovered that a key to successful use of protocols was elimination of certain disadvantages in the initial training and use of protocols.

ACP indicates that one method for collecting the same type and quality of information using the protocol is to introduce the use of an auditable checklist, after practitioners have become familiar with the protocols. Like a protocol, it is a checklist, but unlike the protocol, the logic is not displayed.

The auditable checklist is an encounter form designed for a particular medical problem, as opposed to forms for which information on any condition is recorded. Information on an auditable checklist is recorded in a format. It does not involve duplication of recording and serves as a progress report for an encounter. It is filed in the medical record and a duplicate copy can be used for audit purposes. Space is available on the checklist for additional information. Subjective data and objective data are grouped separately, and there is a section to indicate ordered laboratory tests, diagnostic impression(s) and the plan(s). For most data, a "yes" or "no" is required. The computer performs an audit using the checklist to identify various types of errors as does the audit protocol. However, this checklist audit allows a more precise description of the type of error. The types of error listed are as follows:

- | | |
|----------------------------|------------------------------|
| 1. Missing data | 5. Missing impression |
| 2. Inappropriate lab test | 6. Inconsistent plan |
| 3. Missing lab test | 7. Missing plan |
| 4. Inconsistent impression | 8. Missing physician consult |

PROJECT RESULTS AND CONCLUSIONS

A series of prospective, randomized controlled studies have been performed to assess the quality, efficiency and cost of care in a system where practitioners other than physicians use protocols. These have been published in several major medicine and nursing journals. The studies have been conducted in seven different clinics over a three-year period. The general conclusions are as follows:

1. Quality of care as reflected by process criteria is at least as good in the protocol system
2. Outcome of care (symptom relief, objective evidence of cure) is at least as good
3. Patients with serious illness have not been "overlooked," but have been appropriately referred to physicians
4. Patient satisfaction is at least as good
5. Physician time with patients has been reduced 50 to 85% in acute illnesses, 25 to 40% in chronic illnesses
6. New practitioner time averages 20% more per patient encounter than did physician time
7. System cost (manpower, test ordering, medication ordering) is the same or less than the traditional physician system

In terms of distributing protocol material, as of February, 1976, 15,022 copies of the ACP protocols and 1,630 copies of support materials have been sold to more than 300 private practices, hospital outpatient departments, community clinics, HMOs, and training programs in 40 states and 12 foreign

countries (a book entitled: Common Acute Illnesses: A Problem-Oriented Text-book with Protocols will be published in Spring, 1977, by Little, Brown and Co.).

The training activities are viewed as essential by ACP personnel. Proper use of protocols, according to ACP personnel, determines the success or failure of the implementation within a particular setting.

Training programs in protocol usage presently exist at the Beth Israel Hospital Walk-in and the Dimock Street Health Center. Although the program is informal in nature, ACP staff feel the clinical benefits of the protocol methodology are such that they strongly determine the impact of implementation. According to ACP personnel, the training is not so much a function of education, but of building confidence in the ability to provide medical care. Each trainee is provided with a set of supporting materials including an introduction, a training manual and patient education materials. The introduction includes a description of the use and rationale of the logic for each protocol in addition to numerous references to the literature. The training manual describes in basic language the anatomy and physiology involved as well as the procedures for taking a patient's history, performing a physical exam and conducting lab tests. The patient education materials, written in lay language, discuss the nature of the condition, the purpose of the treatment, the potential side effects, the need for compliance with treatment and follow-up. As noted earlier, the work at these two settings is being monitored and systematically audited by ACP personnel.

SECTION III

HCMS STUDY INFORMATION

BIACP agreed to participate in the survey following HCMS correspondence in October, 1975. Study staff conducted a site visit on May 3, 1976. The documentation received and compiled before and after the site visit includes the following:

1. Komaroff, Anthony L., et al.: Quality efficiency, and cost of a physician-assistant-protocol system for management of diabetes and hypertension. Diabetes, 25:297-306 April 1976.
2. Komaroff, Anthony L., et al.: Nurse practitioner; management of common respiratory and genitourinary infections using protocols. Nursing Research, 25:84-89 March-April 1976.
3. List of questions of importance in setting up protocols asked of recipients of protocols.
4. Stages in Creating A Protocol.
5. The Beth Israel Hospital Ambulatory Care Project 1969-1976, Final Contract Report Executive Summary (15-A) (February 26, 1976).
6. Beth Israel Hospital Progress Report Ambulatory Care Project - II (13A) (August 1, 1975).
7. Beth Israel Hospital Final Contract Report 1969-1976 (14A) (February 29, 1976).
8. Various computerized printouts of statistical analyses of protocol implementation input (September and October 1975).
9. List of most frequent diagnostic codes encountered by staff during protocol implementation with their respective HICDA codes.
10. Introduction, Training Manual and Patient Education Materials of upper respiratory infection and urinary tract infection protocols.

During the site visit, study staff interviewed three persons connected with BIACP:

1. Medical Director of the Ambulatory Care Project
2. Physicist and Systems Analyst responsible for all activity of the ACP having to do with computer quantitative analysis
3. Nurse Practitioner at the Dimock Street Health Center

Topics covered during the interview were as follows:

1. Historical development and implementation of protocols
2. Constraints in the development with regard to human fears and political issues
3. Funding sources
4. Training approach in protocol use
5. Staff support and responsibilities
6. The transition from computerized protocols to manual paper protocols
7. Audits or protocols (routine and special studies)
8. Misconceptions about protocols
9. Output reports for comparative provider assessment and provider self-assessment

10. Constraints in getting nonprotocol users to use protocols
11. Questionnaires administered to protocol users outside Beth Israel Hospital
12. Current protocol implementation and validation studies

MULTNOMAH FOUNDATION FOR MEDICAL CARE

Portland, Oregon

SECTION I

I N T R O D U C T I O N

The Multnomah Foundation for Medical Care (MFMC) was initially organized in 1961 by a group of solo practitioners and small group practitioners to provide insured individuals with indemnity benefits competitive with those being offered by other groups (e.g., closed panel groups). The major corresponding purpose was to establish a systematic fee schedule on a community-wide basis. Since 1970, however, the MFMC has changed its thrust to providing review of medical care for the community in both operational and developmental programs.

MFMC received Experimental Medical Care Review Organization (EMCRO) funding between June, 1971 and May, 1974, and was included in the study because of significant and unique experience developing and implementing certain types of ambulatory quality assurance activities.

MFMC was established in 1963 by the Multnomah County Medical Society. The foundation was soon disbanded, however, due to physician inactivity and lack of interest. In 1965, the medical society created the Health Insurance Review Committee to review cases for Part B Medicare carriers and opened a complaint department to all carriers who questioned claims received from members of the society. Throughout this period, the committee experienced multiple frustrations including: (1) the inefficiency of committee process for reviewing medical fee questions, (2) the inability to confront questions related to appropriateness of care, and (3) a growing concern that the committee was merely serving as an extension of the insurance carriers' fiscal operations.

As a result of these problems, two representatives of the society attended an annual meeting of the American Association of Foundations for Medical Care in 1969; they returned to Portland with an enthusiastic report to the Multnomah County physicians about the progress of California foundations, and the issue of reactivating the Multnomah Foundation was again brought up before society leadership. Documentation notes the argument for reactivating the Foundation centered around moving the medical community in Portland from a position of simply hearing complaints to becoming a strong positive force for improvement of medical care by performing quality review.

During 1970, the medical society's limited executive staff allowed little room for Foundation development; however, there were a few "brainstorming" sessions among the most interested physicians. Then a letter from the National Center for Health Services Research (headed by Dr. Paul Sanazaro at the time) was received requesting proposals for Experimental Medical Care Review Organizations (EMCRO). The more interested physicians saw an opportunity to begin developing a serious review system with EMCRO funding.

MFMC responded to the request with a proposal to design and operate a system for assessing the appropriateness and necessity of certain care. In June, 1971, EMCRO funds were awarded primarily for development of methodologies to assure patients' receipt of good medical services from private practitioners.

There were seven main objectives in the EMCRO proposal:

1. To develop criteria for different diagnoses and treatment procedures
2. To develop a sample base of patients
3. To develop a minimum sample group (250 as required) of providers
4. To develop tools to collect accurate and timely medical care treatment information
5. To develop an automated system to accept patient care data
6. To develop techniques and organizational capabilities for assessment of actual care rendered
7. To develop methods, techniques, and organizational capabilities for achieving behavioral practice changes in physicians, according to results of assessments

After three years of operational EMCRO experience, MFMC personnel began developing a new health service data support system entitled the "Multi-Use Medical Care Data System." Many lessons and experiences based on EMCRO programs were incorporated in the development of the multi-use system, including a broader use for one medical data base. MFMC's EMCRO experience led to development of inpatient utilization review components, the Concurrent On-Site Evaluation and Review Effort (CONSERVE) program. The documentation indicates this program was put in operation and sold to six insurance carriers and eight hospitals. These developments led to MFMC's designation in 1974 as a conditional Professional Standards Review Organization (PSRO).

In 1974, MFMC applied to the Bureau of Health Services Research (BHSR) for grant funding to research, develop and implement the multi-use medical data system, and these operations are the focus of this description. The proposal to Health Services Research described the design, development and testing of the multi-use data system to meet specific needs of various users of health information. Specific objectives were:

1. To decrease the load of paperwork and other indirect patient care tasks performed by physicians
2. To provide increased uniformity of data recording
3. To implement a means of data capture at the source of care
4. To provide improved quality of care through a series of subproposals based on results of quality assurance activities

MFMC's strong point in applying for funding of the multi-use project was its experience in implementing the EMCRO study. One MFMC document developed this logic in a section called "Lessons from EMCRO." MFMC staff documented 11 factors learned through experience which would dictate certain approaches to consider in developing the multi-use data system:

1. Need for total feedback to physician
2. Redesign of the encounter form

3. A new encounter form forces the physician to slow down and write more legibly
4. The patient profile is the most often requested computer output at EMCRO
5. As EMCRO output increased, turn-around time decreased
6. As on-line system is desirable; the additional costs of such a system on an operational basis are balanced by the efficiency of faster turn-around time
7. The on-line system has a much shorter elapsed time for data capture
8. The review system does not have evaluation mechanisms built in; hence objective evaluation was difficult
9. The on-line system has few steps
10. The problem codes need refinement
11. Average rate of use of the entire medical care data portion of the encounter form was 20%

Once MFMC received the BHSR grant, it was implemented immediately. There were some problems with project implementation; this description will focus not on operational status but on the research and developmental elements of the program.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

The experience of the EMCRO program provided MFMC direction in developing a new area-wide approach to data collection for quality assurance (or other health-related programs). MFMC's subjective evaluation of EMCRO revealed systems such as EMCRO placed a significant burden on physicians to complete necessary data collection procedures. The multi-use system, therefore, is designed to simplify these procedures by devising a set of all inclusive encounter forms for both group and solo physicians.

The initial phase of program development required MFMC personnel to determine issues which should be addressed by the multi-use system. Four areas of need were identified:

1. A task force of physicians to determine MFMC needs
2. Examination of other data systems
3. Literature research
4. Needs already identified through EMCRO experience

After the initial list was generated, MFMC personnel and other health professionals (physician, health insurance representatives, etc.) distilled a list of priorities to be addressed by the multi-use system:

1. Development of efficient multi-purpose data capture method
2. Development of professional review (patient and provider profiles) procedures
3. Collection of quality assurance statistics
4. Collection of medical statistics
5. Collection of health policy foundation and statistics
6. Establishment of a computer-based medical management information system
7. Scheduling health maintenance data collection
8. Establishment of insurance claims generator
9. Establishment of a billing system
10. Design of a patient medical history summary

MFMC's major emphasis was development of data collection instruments for selected physicians (both group and solo) to test the most critical aspect of the multi-use system, the data collection procedures. Documentation notes the data collection system would have to "simplify participating providers' overall paperwork while providing them with practice profiles for management" and other uses.

MFMC personnel, along with the multi-use system contractor, the Dikewood Corporation, developed four basic data collection forms:

1. Practice and physicians enrollment form
2. Patient data form

3. Patient medical history
4. Pediatrics physician-patient encounter form

Forms No. 1 and No. 2 are essentially multi-use data forms developed to allow the system to collect in a computer file at Dikewood both provider and patient information as an integral part of multi-use. Each enrollment form required each provider and patient to have discrete multi-use numbers. The provider form could incorporate data from a single physician or a group practice of three physicians. The provider data required included:

1. Specialty or subspecialty
2. License number
3. Name
4. Signature
5. Date of birth

Practice information included:

1. Name
2. Address
3. Census tract number
4. Type of practice
5. Office representative

The form required MFMC coder identification and batch control number.

The patient data form required the following:

1. Patient name
2. Address
3. Census tract number
4. Payment source information
5. Primary and secondary insurance policy data

This final section of the form required several additional pieces of information including insured's identification number, insurance company, name and address and insured's name and address.

Two other encounter forms, No's. 3 and 4, were designed to capture physician-patient encounter information to complement enrollment data. According to MFMC personnel, these two forms required a great amount of initial development time and cost, but once the general form and content were defined, the forms were readily modifiable to other practices. Each form has numerous descriptive medical data elements, and corresponding boxes to check when such descriptive data have to be recorded. Each form also has a carbon copy, where data are simultaneously recorded when a descriptive data element is checked on the original. The copy form has corresponding numerical data codes for each descriptive data element, requiring a provider simply to check the descriptive elements once.

To illustrate the format for data collection, assume the Pediatrics form were to be used for a specific encounter. General patient information would

be recorded (patient name, multi-use number, date of birth and encounter date), and if necessary, problems or diagnosis, laboratory work, diseases or problems treated and immunizations. If a throat culture had been ordered, the box next to that descriptive element would have two pieces of information entered: (1) a number indicating what problem the culture related to (noted in previous section of form) and (2) a checkmark indicating the procedure was ordered. When this information is marked, the numerically coded sheet below the original is simultaneously marked. Both encounter forms have areas where a provider can enter free text information. The coding of this information, as well as coding checks, is completed by MFMC data clerks.

The Pediatric form was developed in conjunction with several pediatricians and one nurse in the area. Each form went through numerous revisions and was implemented in three pediatric offices.

While the data collection forms were being designed, MFMC began developing the automated processing system necessary for the multi-use system. The Dikewood Corporation was engaged to contribute to system development and processing for the multi-use system (Dikewood had been the systems contractor for the EMCRO project).

Dikewood's main activities centered on designing data input formats and a series of reports. The developed (operational) reports displayed to study staff included Diagnosis and Profile and Diagnoses Summary Reports. Each report was physician specific, covering a specified period of time. The Diagnosis and Profile report included the following classes of information:

1. Patient encounter data
2. Patient age data
3. Aggregated services
4. Detailed services data, including laboratory and X-ray
5. Medication data
6. Other therapeutic procedure data
7. Description of disposition

There were many subcategories of data with corresponding number and percentages, as well as distinctions between male and female.

The Diagnoses Summary Report (DSR), also physician specific, covers a specified period of time. This report presents aggregated figures for the same several categories in the profile report:

1. Patient encounter data
2. Patient age data
3. Diagnosed patient data
4. Undiagnosed patient data
5. Aggregated service data
6. Detailed service data

The next section of the DSR includes the diagnoses (by H-ICDA codes) by frequency, with a corresponding abbreviated description, patient percentages

and encounter data. These two reports were the only ones developed at the time of on-site investigations by study staff.

The next task faced by MFMC personnel was to recruit providers to participate in the program employing the data collection format in their practices and allowing MFMC to aggregate data and use the resulting reports. The original research design required 16 provider offices to be included in the implementation; however, MFMC experienced some problem in recruiting providers, and at last report, only three physicians were participating in multi-use implementation.

ADDITIONAL COMMENTS

MFMC personnel noted implementation of the multi-use system is proceeding slower than anticipated. There were two reasons cited:

1. Physicians were unwilling to participate because of the lack of tangible benefits derived from their participation in the EMCRO project. MFMC personnel indicated physicians do not seem interested in taking part in research and development activities, but only in operational programs where their practices can be directly benefited because of input and participation. This ties in with the second point which is:
2. The lack of incentives built into the project to give potential participants some immediate benefits for use of their information and time in collecting project data. The complexities of the multi-use system contributed to this factor and were underestimated by MFMC personnel.

The three physicians involved in the multi-use project at this point include an internist who participated in the EMCRO program and who is highly committed to the multi-use concept, and two pediatricians whose future participation in the project is questionable; they do not see the need for the multi-use system in their practices. At this point MFMC's estimation is that 500 physician-patient encounters have been collected and entered in the multi-use computerized system.

The present multi-use system staff includes one data entry person, one data analyst, one programmer, and an assistant executive director who is project manager. MFMC personnel noted during the February site visit there was not enough time to determine whether there would be trouble with the software developed by Dikewood. However, a flexible language had been used and problems were not anticipated. It was also noted some aggregate data reports based on the encounters of the three physicians involved in the project would be generated. The present grant application for multi-use expires July, 1976, although MFMC will process claims and information until September, 1976, with a no-cost extension from BHSR.

The four main problem areas in the development and implementation of the multi-use system can be summarized as follows:

1. Need for funding for further research in support of multi-use
2. Need for increased involvement of physicians in multi-use
3. Need to involve physicians committed enough to learn the data collection forms
4. Lack of control over development of software of an outside company

SECTION III

H C M S S T U D Y I N F O R M A T I O N

Two visits were made to MFMC, one on October 27, 1975, the other on February 12, 1976. The first visit was constrained by the fact that HCMS had to interview three of the Multnomah Foundation's staff people at the same time, making it difficult to record the discussion on paper.

The following documents were received from MFMC:

1. The Final Report of the Multnomah Foundation for Medical Care Experimental Medical Care Review Organization (January, 1975)
2. Grant Application for the Multi-Use Medical Data System (February 1, 1974)
3. Two supplementary reports on the Multi-Use Medical Data System (April 12, 1974, and May 4, 1974)
4. An organizational chart of Multnomah Foundation for Medical Care
5. Multi-use data forms, most of which were dated on July 11, 1975
6. Examples of computer displays from multi-use project

The documentation comprised more than 800 pages and provided study staff with detailed information about MFMC's EMCRO project and the development of the multi-use project.

The interviews on both site visits were conducted with the Executive Director of MFMC and the Associate Executive Director. The Project Director for the multi-use project was also interviewed on the first visit.

The following topics were the major points covered during the on-site interviews:

1. Development of the Multi-Use Data System
2. Development of Multi-Use System methodology
3. Data collection and processing for multi-use
4. Physician participation in multi-use project
5. Problem areas in multi-use methodology
6. Interrelationship between EMCRO results and multi-use project

CONNECTICUT AMBULATORY CARE STUDY

SECTION I

I N T R O D U C T I O N

The Connecticut Ambulatory Care Study (CACS) project was initiated in 1972 through the joint efforts of representatives of Connecticut State Medical Society (CSMC), Yale University, the University of Connecticut (UC) and the Connecticut Regional Medical Program (CRMP). Each entity has expressed some interest in studying quality assurance methods and issues within solo and group practices within the State of Connecticut. The contract to conduct the research was negotiated between CSMC and CRMP, and started officially on October 5, 1972.

This description does not attempt to develop a detailed chronological discussion of the CACS project, but will only present important research components of the study. Study staff noted the project has a complicated history: as a result the project has seemed to suffer from a lack of consistent direction complicated by funding and organizational problems.

The goals of the study were:

1. To evaluate the applicability of methods for patient care evaluation developed in outpatient settings in Connecticut
2. To develop techniques for monitoring the quality and appropriateness of ambulatory care
3. To conduct a limited evaluation of quality care delivered in alternate settings, including a minimum of four hospital outpatient departments

Research activities focused on quality assurance methodology and patient evaluation in solo practitioner offices. Data were collected in five hospitals in the greater Hartford and greater New Haven areas which had the largest populations and a sample of solo practitioners. Information was obtained from hospital physicians who provided care to hospital patients presenting selected problems in a two-week period; 153 physicians participated. All primary care hospital practitioners participated (i.e., general practitioners, internists, and pediatricians). Ultimately, a stratified random sample of 155 solo practitioners was selected from all primary care physicians licensed in the greater Hartford and New Haven areas. After this sample was contacted, 110 physicians indicated their willingness to participate.

The revised objectives of the study were to identify a large sample of solo practitioners and to sample patient medical records within their offices.

The performance of physicians was then to be described according to performance level of care based on predetermined criteria developed by a technical advisory group associated with the CACS. There were three levels of analysis. First, performance measures were presented by practice setting and major specialty on each criterion for all performance factors. Second, differences in performance in major professional and organizational characteristics were identified. Third, significant attributes were length of appointment, degree of delegation of responsibility for tests and procedures to nonphysician staff, number of MDs in the practice (private practice only), degree to which physicians are disturbed by "trivial complaints," physician income, specialty, length of time in practice and many others. Other analyses provided information on differences in care by sociodemographic characteristics of the patient population. Descriptive analyses of physicians and their practices were also available. The object was to take a time reference sample of patients seen by these 110 solo practitioners and audit those charts for specific developed criteria. CACS staff also developed a scoring system which would compute a performance score for each physician.

The CACS program was included in the study to reflect operational research activities in quality assurance techniques.

SECTION II

QUALITY ASSURANCE PROGRAM

BACKGROUND AND RESEARCH COMPONENTS

Prior to CACS, initiated in 1972, several key persons involved in health services research had expressed an interest in researching quality assurance and had begun informally communicating with prominent members of the Connecticut medical community. These persons began to bring the idea to representatives of various organizations. After the CSMC, Yale University and University of Connecticut began to interact with CRMP, it was determined (early in 1971) that funding might be obtained from the national Regional Medical Program to initiate the study.

A contract was negotiated with the state medical society, which had over-all responsibility for implementation of the research design and the structure of the program. To initiate the project, two advisory committees were appointed: 1) a General Advisory Committee was organized by the medical society and the investigators to ensure scientific conduct of the project, and 2) a Technical Committee was designated by the advisory committee to oversee the development of criteria for all selected diseases and problem areas.

As stated in the final contract, specific objectives included: (a) evaluation of the applicability of methods for patient care evaluation developed in other geographic areas and settings, (b) development of standards and techniques for monitoring the quality of ambulatory care, (c) evaluation of the effect of alternative organizational devices for primary health care delivery, and (d) construction of mechanisms to best serve the educational needs of practicing physicians.

The current president of CSMC was designated principal investigator and two co-principal investigators were appointed. A project director and a medical director were hired. The project director was responsible for hiring medical records technicians, abstractors and research assistants. The record technicians examined the quality of medical records and review records, the abstractors abstracted medical records based on the criteria maps, and research assistants conducted interviews and filled out questionnaires.

The sample selection was based on RMP contractual requirements. The other selection process involved choosing disease conditions to be reviewed. This determination was made through interaction among the two principal investigators, the Technical Committee, the General Advisory Committee and research staff personnel. The Technical Committee generated a list of 15 topics, divided into four categories:

- A. Chronic Disease
 - 1. Hypertension, adult
 - 2. Diabetes mellitus, adult
 - 3. Arteriosclerotic heart disease, adult
 - 4. Asthma, pediatric only

- B. Acute Disease
 - 5. Urinary tract infection or dysuria, adult and pediatric
 - 6. Pharyngitis
 - 7. Otitis media, pediatric only
- C. Problem Areas
 - 8. Chest pain, adult
 - 9. Adult and pediatric abdominal pain
 - 10. Adult and pediatric obesity
- D. Skills
 - 11. Well-adult physical exam
 - 12. Well-child exam
 - 13. Electrocardiogram interpretation

CACS personnel completed the task of choosing topics for study through extensive discussions of each category and topic. Eventually, several topics were dropped from the initial list, including electrocardiograms, well-adult exams, arteriosclerotic heart disease, diabetes mellitus, asthma and obesity. Documentation notes the major consideration in ruling out certain topics was the difficulty of collecting medical record information for the topics, due to low incidence of the problem or high cost of abstracting.

After the final topics for study were selected, the Technical Committee divided into subcommittees to develop criteria for the topics. Subcommittees were organized to represent different specialties and practice settings. Documentation notes over 65 physicians were brought in to assist in criteria development. Several steps in this process were outlined:

- 1. Each physician was interviewed by CACS staff to obtain an initial criteria list (interviews were audio recorded)
- 2. Meetings were held throughout Connecticut to allow the consultant physicians to review initial criteria lists
- 3. After group discussions were completed, each physician was asked to rank criteria items

Once this was completed, CACS staff compiled frequencies for the criteria items and computed the reliability of individual physicians. The documentation suggested criteria development involved many informal interactions between physicians in arriving at consensus and judgments. CACS staff encouraged physicians to develop only essential criteria items, preferably less than ten items per topic. This was not possible and criteria items eventually ranged from 40 to 115 items. Criteria items were finally selected in deliberations between Technical Committee members and CACS staff. CACS staff indicated that including physicians from diverse practice settings (e.g., hospital-based, academic, solo practice), although necessary, caused much disagreement in the resolution of essential criteria items. Throughout the study, each topic chosen to be part of the study had a specific panel of physicians chaired by a member chosen by staff. This panel was utilized to answer all CACS questions related to that topic, as well as to update and revise criteria based on CACS program operational experiences. A criteria checklist was also filled out by the

participating physician to document individually held criteria and to validate criteria development by the physician panels. Participating physicians validated panel criteria which were predetermined. Observation of a sample of pediatricians validated the measures obtained from patient records.

CACS data collected went beyond abstracting data from medical records. CACS staff developed and conducted interview schedules with the participating private and hospital practitioners. CACS personnel indicated a professional leadership questionnaire was administered to assess a practitioner's personal assessment of his own managerial style. An organizational questionnaire was administered to assess the organizational style of private and hospital practices. Questionnaires were developed by several CACS research assistants. A questionnaire designed to obtain information on the physician's personal and professional attributes was designed and administered. CACS staff also collected some sociodemographic data (age, address, sex) as well as the presenting problems for all patients appearing in the two-week log period.

Once the interviews were completed, CACS staff focused on the main data collection activity. The abstraction of medical record data was conducted by several CACS research assistants trained for such field work. Information from sample medical records was recorded via a criteria abstract package which included a list of the criteria, instructions for their implementation and an answer sheet in which data were recorded by field workers. The CACS program abstractors went through a one- to two-week training session. The training schedule included classroom work, lectures and visual aid presentations, as well as onsite visits for abstract and chart testing. One person, a certified medical records technician, was responsible for data accuracy and control. CACS instituted various validity checks of the abstracting process based on monitoring 50% of abstracted medical records. Abstractors were instructed to collect certain data elements on disease entities which then could be compared with criteria.

Office medical records served as the data source on each practitioner. Records were chosen by asking office personnel to compile a two-week log of patient visits for the identified topics. Once the proper sample number was available in each office, CACS staff arranged to make on-site visits.

CACS staff spent considerable time coordinating the field work. Initial visits were made to all sites to negotiate with participant staffs, to assess the quality of medical records to be abstracted and to determine the incidence of topics to be reviewed. The data analysis conducted by CACS to describe physician performance in accordance with criteria was constructed around a trilevel scoring system:

1. System Zero, where each criterion is scored either zero (0) or (1), depending on whether evidence existed that a criterion was met.
2. System One assigned relative values to each criterion item "by taking the average weight given to each item by a panel of physician experts."
3. System Two requires each criterion to be assessed according to all other information available, based on CACS physicians' suggestion

that more characteristics of patients and physicians be taken into account. The scoring required the reviewer to assign a range from +3 (highest) to -3 (lowest) for specific criteria.

Because of the large number of criteria for each topic on which physician performance could be measured (there could be between 40 and 115 criteria per topic), CACS used factor analysis to reduce the larger set of dependent variables (criteria) into smaller sets. Reducing the number of dependent variables subsequently related to the study's independent variables, aided in interpreting results. Reduction was accomplished by finding subgroups of criteria in each topic which were related to, yet uncorrelated with, the criteria found in other subgroups. Factor analysis was used to identify these subgroupings of criteria. In fact, multiple factor analyses were performed in each topic, and the identification of factors was based on a combination of statistical and judgmental concerns. Generally, criteria which loaded (i.e., correlated with) a factor at a level of 0.40 or greater were considered important in defining that factor; the criteria statistically associated with the factors had to be inter-related according to meaning (content) before they were accepted as defining a factor. Several reliability and validity checks were performed for each factor within the topic areas.

Having performed the factor analyses and established the factors, a performance score on each factor was computed based on the compliance or noncompliance of physicians with the various criteria comprising each factor. A single score for performance was computed for each subgroup of criteria which emerged from the factor analysis, and these scores were then related to the independent variables of the study. In the CACS scheme, all criteria items associated with a factor received an equal weight in the calculation of a performance score for each factor (i.e., they all received a weight of one). Criteria found to be unrelated to a factor did not contribute to the performance score calculated for that factor (i.e., those items received a weight of zero).

CACS reported that this analysis was conducted for all three scoring systems, comparing each system for the difference in factors yielded through the correlation analysis. Documentation notes that there was "a great deal of consistency across (scoring) systems," that is, similar factors were identified across systems despite conceptual differences in scoring.

ADDITIONAL COMMENTS

During interviews, CACS personnel identified several problems which affected the project and would probably affect any project with similar objectives. These problem areas included:

1. The diversity in solo practitioner office settings and geographical locations of solo practitioners
2. The validity of medical records in terms of measuring solo practitioner performance levels
3. The cost of abstracting and data collecting
4. The cost of administering several questionnaires

SECTION III

H C M S S T U D Y I N F O R M A T I O N

CACS staff was initially contacted on September 24, 1975, regarding participation in this study. The importance of CACS's project was communicated to study staff by Bureau of Quality Assurance personnel. Study staff requested CACS documentation which described their program and the following documents were received and compiled:

1. Copy of contract between the Connecticut RMP and Connecticut State Medical Society to conduct the CACS (1972)
2. Correspondence from the CACS Research Director to the Bureau of Quality Assurance detailing project activities and plans (May 2, 1975)
3. Abstract forms for all the disease entities (May-August, 1974)
4. CACS Progress Report (October 10, 1975)

Significant amounts of information were collected during the site visit on October 16, 1975. Several hours were spent with CACS personnel such as the project director and the research assistant (who developed and administered the Physician Characteristics Interview to all participating private and hospital practitioners).

Study staff interviewed another senior research assistant who developed the method of reducing performance data and constructed the factor analysis. (Information was computerized by programmers.) At this time, results of CACS research activities concerning the impact of quality assurance on practices and assessment by the solo practitioners of findings is being reviewed by the state medical society and will be released at the end of this year (1976). CACS staff is now developing a strategy for obtaining practitioner feedback.

UNIVERSITY OF MINNESOTA

Department of Physical Medicine and Rehabilitation

SECTION I

I N T R O D U C T I O N

The Department of Physical Medicine and Rehabilitation (DPM&R) is a large outpatient-inpatient department in the University of Minnesota Medical School complex. DPM&R is divided into three major service centers including (1) Clinical Services, (2) Research, and (3) Education. Under the supervision of the medical director, who is also head of the department, Clinical Services is responsible for care of approximately 4,000 patients per year, both ambulatory and inpatient visits. DPM&R is the only department in the medical center currently implementing a formalized quality assurance program. The department was established in 1947. About 1972, the department, through its Research and Training Center and by means of a grant from the Social Rehabilitation Service (SRS, DHEW) began an evaluation, in conjunction with INTERSTUDY, of the quality of rehabilitation services using an outcome assessment methodology. This study, which focused on outcomes of stroke patients who had experienced rehabilitation, was based on John Williamson's Health Accounting program, developed at the Johns Hopkins University. At the completion of that study, DPM&R became involved in the present Williamson Health Accounting Project (July, 1974 to June, 1977). The subject of this description is the specific objections of the latter project as outlined in Williamson's first annual progress report:

1. Consolidation and analysis of previous health accounting experiences and development of new project resources
2. Evaluation of the reliability and validity of the basic procedures of the health accounting method
3. Examination of the impact of health accounting on patient health
4. Evaluation of the impact of health accounting on clinic organization and administration

It should be noted that DPM&R is one of six clinics in the current Health Accounting Project.

SECTION II

Q U A L I T Y A S S U R A N C E P R O G R A M

This section will present the elements of DPM&R's quality assurance program in three sections:

1. Background
2. Planned program methodology
3. Specific operational activities

Planned program methodology is described based on the documents provided by Dr. Williamson and DPM&R. Information for operational activities was obtained through the onsite interviews.

BACKGROUND

The DPM&R is involved in the national Health Accounting Project. As indicated, development of the current health accounting study began with the stroke study about 1972, through which the project director became acquainted with Dr. Williamson and his health accounting methodology. After consulting with Dr. Williamson throughout the stroke study, the project director agreed in 1974 to participate with him in the current project. Because the health accounting methodology had not previously been assessed in a setting like the DPM&R's, Dr. Williamson was eager to test its effectiveness in such a setting. Plans for the project were begun in September, 1974. The project director stated the reasons for continuing this type of quality assurance activity in DPM&R are (1) the department was willing to test the methodology, (2) the project had independent funding, and (3) the department had experience with outcome studies.

PLANNED PROGRAM ACTIVITIES

To initiate the Health Accounting methodology, a clinic must take four steps:

1. Organize a Quality Assurance Board
2. Assign a physician coordinator
3. Hire a health accountant
4. Recruit members for priority topic and study design teams

It is the duty of the Quality Assurance Board (QAB) to oversee the project within the clinic. This group typically consists of seven members representing administrative personnel, medical specialties, the Board of Trustees, and if possible, consumers. This group is required

to meet three times a year for the duration of the program. The general purpose of this board is to approve team membership for the priority topic team and study design teams; further, the QAB makes assessment recommendations and institutes corrective action in the clinic.

The physician coordinator acts as a liaison between the QAB and the various study teams and provides continuity through all stages of the project.

The health accountant is a nonmedical person hired to conduct the actual quality assurance studies (mainly data collection and compilation). It is the health accountant who has the responsibility of gathering all necessary data to evaluate outcomes either by record review or patient interview.

Two topic teams, composed of seven to nine members, are responsible for developing separate lists of priority study topics to be completed during the study period. These topics are generated by using small group estimation techniques to identify "Achievable Benefits Not Achieved" (ABNA). The team members rate the final topics according to optimum achievable benefits under the constraints of present clinic practice conditions. These are then the priorities for the study topics.

Study teams are then organized to investigate each ABNA topic. A study team usually consists of approximately five members chosen on the basis of knowledge and experience with the study topics. This team has the responsibility for confirming the decision of the priority team and designing the study to be implemented by the health accountant. The study team delineates the patient population to be sampled, the sampling procedures and the measurements to be applied in assessing the acceptable outcome standards which they set. Finally, they compare the measured results of the standards and make recommendations to the QAB.

The key concept of the priority setting mechanism is ABNA. ABNA refers to a medical care benefit which is presently attainable, but has not been attained. In setting study priorities, those planning quality assurance programs use the ABNA framework to make explicit assumptions regarding how much and what type of care benefit is possible within the constraints of present scientific and medical knowledge. It also forces quality assurance planners to make explicit assumptions regarding what values are to be applied in defining benefits, and in determining how much of what type of medical care warrants the most immediate attention.

The estimation of ABNA is made practical, according to Williamson, by the development of what he calls "small group estimation technology."

This procedure centers around the staff's estimate of achievable benefits not achieved, followed by a discussion of the first round of estimates. A second series of estimations is made and a final group estimate of ABNA is generated. The quantification of the outcome measure involves not only an estimate of ABNA, but also an estimate of achievable therapeutic benefits.

Both these measures are quantifiable by use of a functional impairment scale. This scale is an ordinal measurement of the degree of impairment in life activity for the population at risk. Documents define these levels of functional status: (1) no impairment (2) asymptomatic with detectable impairment (3) symptomatic at major life activity (4) restricted from major life activity (5) dependent on others for major life functions and (6) death. Using these techniques the two priority teams validate each other's lists of high and low ABNA topics. These topics are then assigned, various study teams determine formal confirmation, and investigation of the particular topic begins.

Williamson outlines the duties of the coordinator, health accountant, and priority and study teams within the five-stage framework of health accounting as described below:

Stage 1 activities require the priority team, under the direction of the coordinator, to identify topics, which, if studied, will probably result in the most patient health improvement.

Stage 2 consists of designing and implementing an initial outcome assessment of a high priority topic. The study team designs the entire study, but principally sets outcome standards and measures. The information for assessments is gathered by the health accountant under the supervision of the physician coordinator. If the health outcomes are within the standards established by the clinic staff, further study of that topic is not warranted. On the other hand, if measured outcomes do not meet standards, more definitive study is required.

The study team, coordinator, and health accountant perform similar assessment roles in Stages 3, 4, and 5. Stage 3 consists of a more definitive inquiry to confirm that outcomes do not meet clinic standards, and to identify the determinants of inadequate outcomes. Stage 4 consists of planning and implementing an effort to correct the deficiencies identified. Stage 5 is a repetition of the initial outcome assessment to determine whether the improvement effort was successful. If standards are met, the project is completed and a monitoring schedule is established for periodic reassessment. If acceptable improvement is not achieved, then

stages 3 and 4 are repeated until standards are met or the staff determines that the possible gain does not seem worth the effort. Figure 1 summarizes these stages.

1	Stage			5
	2	3	4	
Priority Setting	Initial Outcome Assessment	Definitive Assessment	Improvement Action(e.g., Continuing Education)	Outcome Reassessment

Figure 1: Stages of the Health Accounting Recycle Project in its strategy to assure an improved outcome. "From Health Accounting": An Outcome Based System of Quality Assurance Illustrations Applicable to Hypertension, J.W. Williamson, John Hopkins University.

OPERATIONAL ACTIVITIES

As of the site visit date, the DPM&R Health Accountant Program had completed the study of urinary tract infection (UTI) in spinal cord injury patients. The department is also in the process of conducting other studies in chronic low back pain and use of intramuscular neurolysis to lessen spasticity. At the time of the site visit, the chronic low back pain study was in stage 5 and the intramuscular neurolysis study was in stage 1. The completed study on UTI will be used as an example to describe the operational status of health accounting in the DPM&R.

It should be noted that DPM&R operational activities closely correlate with methodological plans described in the preceding section.

Prior to the first meeting of the study team, the priority teams had identified UTI in spinal cord injury patients as the most appropriate topic to be addressed. After turning this problem over to the study team, discussions began on what operational definitions would be used to delineate the study population. No formal definitions were decided during this meeting (June, 1975) and it was agreed that the estimates of benefits would be based on a general nonspecific definition of the health topic.

The team then made first (later revised) estimates of the maximum acceptable percent of patients at each level of the functional limitation scale. To determine if a therapeutic outcome assessment would reveal a significant difference between desirable and actual outcomes in the population, team made estimates of the percentage of patients at each level of the functional limitation scale and of the percent of patients "out of control" for the problem. Certain modifications were made on the six-point functional limitation scale developed by Williamson, to make it more applicable to the study at hand. Other modifications were incorporated later as the topic became clearer, though the modifications did not neglect the substantive aspects of the methodology.

The difference between the estimated level of impairment for the out-of-control group and the estimated level of acceptable impairment was used to express the amount of improvement that the team believed could be accomplished by changing the care given to patients with UTIs. The team then discussed various ways of collecting the appropriate data to verify these estimates. Next, discussions were held to determine what type of corrective action could be taken to bring the level of care now being achieved up to the acceptable level identified (given the estimates were an accurate reflection of the problem).

The second study team meeting (July, 1975) clarified the topic to be studied in more exact terms (bacteriuria was chosen as the UTI indicator). The functional limitation scale was then finalized to accurately reflect both medical and social function limitations to determine the distribution of the study population among the categories in the scale. Data collection procedures were devised to generate information which could be used to classify the study sample into categories of functional limitation. These data involved both clinical laboratory tests and social function (questionnaire) information.

In the third meeting (November, 1975), the study team compared the results of the study information on: 1) the maximum acceptable standards for each level of the functional impairment scale which they had set earlier, 2) estimates of the expected results, and 3) the actual outcomes as indicated from the data collected on the study sample. (No figures were provided on the size of the sample). After looking at the results, it was decided that it would be necessary to review the data thoroughly and meet again in two weeks to generate decisions for improvement and other action.

The final meeting (December, 1975) of the study team for UTI involved a review and discussion of the discrepancies identified in the results. From this discussion, certain suggestions, recommendations, and guidelines for improvement action were forwarded to the

DPM&R Quality Assurance Board (consisting of 14 members) for review and consideration. At this point, the UTI study was considered complete and the next ABNA topic (chronic low back pain) began its cycle with a new study team.

It should be emphasized that the health accountant was the person responsible for carrying out the actual study described above. This involved questionnaire construction (in conjunction with department physicians), data collection, and presentation of results. The study team described above functioned only as a policy setting group for the study, and was not involved in the actual implementation of the study methodology.

ADDITIONAL COMMENTS

During interviews, DPM&R personnel mentioned several problems, in the context of their setting, related to administering the health accounting methodology. One problem identified concerned the amount of time required to measure outcomes for chronically ill patients. Since this was the second time the health accounting methodology had been formally implemented in a rehabilitation facility, these types of questions were anticipated. This resulted in some modifications in the implementation of the health accountant methodology noted earlier.

Another problem involved the demand being placed on the department in terms of patient care, teaching responsibilities, resident physician supervision and research functions. It was indicated that the funding level for the project was not adequate to support a full-time health accountant. However, the administrative assistant for the department indicated the health accounting program would be continued after the National Health Accountant Project funding ended and estimated the cost at \$16,500.

The DPM&R, as a department within a very large university setting, is somewhat atypical of most sites in this survey. The organizational affiliations and administrative processes are much more complex than free-standing facilities. In addition, the DPM&R is simultaneously involved in both ambulatory and inpatient quality review.

There seems to be good support from the entire department for the quality activities. It was pointed out that these activities were not seen as having only research functions, but also as having a major impact on the type of health services delivered by the department as a whole.

The medical coordinator of the quality assurance activities seems to provide focus and direction to the entire project. Because

of his previous working relationship with Dr. Williamson, and his personal commitment to the health accounting approach, he has been able to bring enthusiasm and involvement to the project. The health accountant is not a member of the department. He works only on the health accounting project, and indicated this causes some difficulties in terms of arranging physician meetings, an important administrative demand of the health accountant method. Such an arrangement requires the medical coordinator to establish and set up meetings required for priority setting and the study teams. There is little discussion of the health accounting project in normal staff meetings, although there is a good interchange among staff members when they meet for quality assessment purposes.

Revenue sources from which patient services are financed (for 1974)
are as follows:

	<u>No. patients</u>	<u>Percent patients</u>
County	66	1.5
Fee for Services	277	6.5
Medicare/Medicaid	1057	25.0
Other 3rd Party	2466	58.0
Training and Research	37	.9
Special Funds	215	5.0
Special Services	6	.1
Other	0	0.0
Unknown	134	3.0
Total	4258	100.0

SECTION III

DELIVERY SYSTEM CHARACTERISTICS

The DPM&R's clinical services division is divided into four subcategories: 1) Rehabilitation Ward, 2) Outpatient Clinic 3) Rehabilitation Center, and 4) Inpatient Consultation. Services administered by the Rehabilitation Center include:

1. Physical therapy
2. Speech therapy
3. Occupational therapy
4. Social service section
5. Psychology section
6. Vocational section
7. Psychiatric consultation

The patient population characteristics for the DPM&R in 1974 may be broken down as follows:

	<u>No. patients</u>	<u>No. visits</u>
Inpatient	2712	34630
Outpatient	917	11352
Total	3629	45982

<u>Age</u>	<u>No. patients admitted</u>
0-6	194
6-11	738
12-20	317
21-40	1141
61-64	1157
Over 64	491
Unknown	220
Total	4258

SECTION IV

H C M S S T U D Y I N F O R M A T I O N

John Williamson, M.D. of John Hopkins University, was contacted in October of 1975 and asked if he could suggest any ambulatory settings with operational quality assurance programs which would be interested in participating in the study. Dr. Williamson replied on October 10, 1975, indicating he would welcome such an opportunity and suggested consideration be given to some or all of the six settings in his Health Accounting Project. DPM&R was chosen because it provided an opportunity to examine a quality assurance method implemented in a large department, as opposed to a free standing setting.

The medical coordinator for the Health Accounting Project at the University of Minnesota DPM&R was contacted on October 21, 1975, to ascertain interest in participating. In a letter received January 2, 1976, DPM&R formally agreed to participate in the study. Initial documentation for the health accounting approach had been received from Dr. Williamson, which outlined the methodology being employed at DPM&R. Information about DPM&R activities was obtained during the site visit January 26 or 27, 1976, at which time the Data Collection Instrument was administered and further DPM&R documentation was obtained. All documents received and compiled included:

Documentation provided by Williamson:

1. Annual Progress Report Evaluating an Outcome Based Quality Assurance Program July 1, 1974 - June 30, 1975 and Appendices
2. Preliminary Evaluation of Health Accounting: Content Analysis
3. Health Accounting: An Introduction
4. Understanding ABNA
5. Health Accounting Training Study
6. Evaluating the Impact of Health Accounting: The Pretest Questionnaire
7. Health Accounting: An Outcome Based System of Quality Assurance: Application to Hypertension

Documentation proved by DPM&R:

8. Organizational Chart for DPM&R
9. DPM&R Patient Information System Tabulations for 1974
10. Minutes for Study Design Meetings dated June 19, 1975, July 1, 1975, November 25, 1975, December 9, 1975, January 8, 1976, undated minutes following January 8, 1976
11. Interview Schedules for High ABNA Topic #1
12. Health Accounting Project Progress Report dated November 10, 1975
13. Evaluating Quality of Rehabilitation Using Outcomes Assessment
14. A Stroke Study done by the DPM&R, undated

These documents were used extensively in constructing this description of the DPM&R's Health Accounting Project. Additional information was obtained on site in a series of interviews with the following personnel:

1. Medical Coordinator for the DPM&R Health Accounting Project
2. Health Accountant
3. Previous Health Accountant
4. Administrative Assistant
5. Head of the Department

A total of eight hours of interview time was spent with DPM&R personnel. Interviews with the medical coordinator, the health accountant and the administrative assistant were audio recorded.

Topics covered during the interviews included:

1. The history of the Health Accounting Project in DPM&R
2. The objectives of the project
3. Unique characteristics of DPM&R which affect the quality review program
4. DPM&R organization for health accounting
5. Topics under study
6. Criteria development
7. Cost estimates



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